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BY JOHN D. COMRIE, M.A., B.Sc., M.D., F.R.C.P. EDIN.
LECTURER ON HISTORY OF MEDICINE AND ON CLINICAL MEDICINE, UNIVERSITY OF EDINBURGH.

THE following account gives a summary of the physical condition and defects found in 10,000 recruits examined by the writer while President of No. 1 Area Recruiting Medical Board. This number was chosen for analysis partly because one can see at a glance by shifting the decimal point two places to the left the percentage represented by the various figures, and, on the other hand, if multiplied by 100 the defects are shown in their incidence per million of population. Another reason for recording this particular 10,000 is that this series of examinations extended from August, 1916, when the Military Service Acts had come fully into operation, up to May, 1917, just before the Review of Exceptions Act made any appreciable lowering in the general physique of recruits examined. During this period the recruits who were called for examination represented the average citizen.

THE CATEGORIES OR GRADES OF DEFECT.

For the first time in the history of Britain there occurred an opportunity to observe on a large scale the prevalence of various defects which do not necessarily bring the public for medical advice to hospital or to their insurance doctors. As No. 1 Area (the Royal Scots) comprised both an agricultural and industrial population in the counties of Edinburgh, Haddington, Linlithgow, and Peebles, with the suburban population of small towns like Bathgate, Peebles, Haddington, North Berwick, Prestonpans, it offers a fair sample of the country generally.

It may be stated at once that only some 20 per cent. of the male population between 18 and 41 years of age were found free from noteworthy physical defect; so that in time of peace, when the Army can afford to choose none but the physically perfect, only about one-fifth would be available for recruiting into the Army. In time of stress such as the European War, where the period of service was limited, when the soldier laboured only for short intervals with long periods of rest, when the need for special effort was clamant, and when particularly public spirit should have gone far to override slight physical discomfort, many of these minor defects could be disregarded. In the particular area under consideration over two and a half times that proportion were found fit for general service during the period stated. While the relative figures fluctuated from time to time as different classes, employments, and conditions of men were called up, the percentages over the whole 10,000 were as follows: Category A, 51·5; B 1, 14·4; B 2, 5·8; B 3, 0·6; C 1, 6·5; C 2, 5·9; C 3, 6·0; Postponed, 4·9; Rejected, 4 4.

It may be explained that Category A included those men who, though not necessarily free from slighter defects, were of good strength, sound constitution, and after training were capable as soldiers of using arms and of such exertion as carrying full kit on a long route march. The man in Category B 1 was supposed to be fully fit for service abroad, but for some reason, such as advancing years or more marked physical defects, was suited only for garrison duty involving shorter marches of, say, five miles. The man in Category C 1 was essentially of the same type as the man of B 1, though, being not quite so fit, he was relegated to home service (later to service in France or at home). Men of B 2 and C 2 categories were considered fit only for labour and were not expected to march, while those in B 3 and C 3 were fit only for sedentary work. These categories bear the following relation to the "grades" introduced afterwards (end of 1917) by the Ministry of National Service: Grade I. = Category A; Grade II. = Categories B 1 and C 1; Grade III. = Categories B 2, C 2, B 3, and C 3; Grade IV = Rejected.

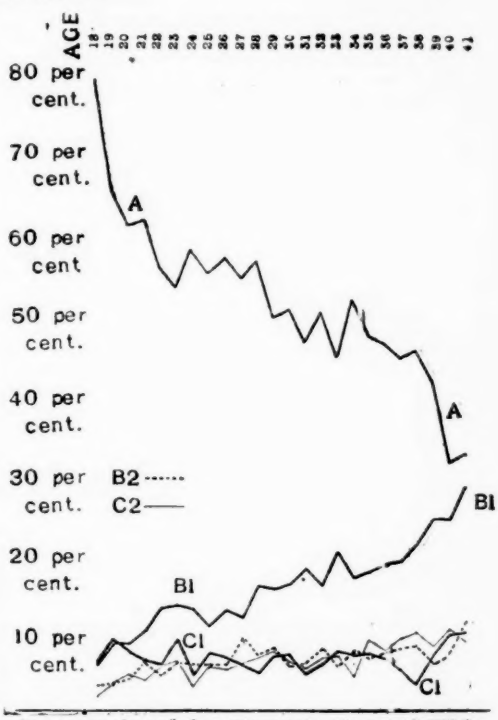
The difference between A men and the 14·4 per cent. of men not fit for more than garrison service abroad (B 1) was accounted for to the extent of 10 per cent. by the following classes of defect: Eye conditions impairing vision, 2 2 per cent.; deformities of the feet restricting marching power, 1 6 per cent.; hernia, varicose veins, mild cardiac conditions, obesity and dyspepsia, and stiffness associated with middle age, each 1 per cent.; painful testicular conditions—e.g., varicocele, 0·7 per cent.; and ear defects, 0·6 per cent.

The 4·4 per cent. of rejected men were considered unfit for any form of service chiefly by reason of: serious disease of the heart and blood-vessels, 1·5 per cent.; tuberculosis, 1·1 per cent.; deformities of the bones, joints, &c., 0·8 per cent.; and epilepsy with mental dullness, 0·5 per cent.

The Relation of Defect to Age.

The number of recruits was almost three times as great at age 18 as at any other age, and the numbers between age 20 and age 30 were only about three-quarters of those from 30 to 40 years. This fact is probably accounted for by the greater voluntary enlistment of the younger men in the earlier days of the war.

The ratio of men fit for general service to those in the other categories was much greater in the earlier years. The percentage of A men fell rapidly from 77 6 at age 18, to 52·1 at age 23; then more gradually to 50 6 at age 34; and rapidly again to 30·7 at age 40. The numbers of men in Category B 1 were to a certain extent complementary to those of Category A; and the percentage of B 1 men rose steadily from 5·7 at age 18 to 27·8 at age 41. The percentage of men in Category C 1 was found practically the same at all ages. The percentage of men in the lower categories fluctuated very little, but showed a gradual rise, starting with 2 to 3 per cent. at age 18 and being trebled by age 41. These points are brought out well in the accompanying chart.



Percentages of men fit for different categories as age increases from 18 to 41.

The following figures are given for the purpose of comparison:—

	10,000 recruits of No. 1 Area in 1916–1917. Per cent.	Whole of Great Britain in April, 1918. Per cent.
Grade I. (Cateory A)	51·5	55·9
Grade II. (Categories B 1 and C 1) ...	20·9	19 8
Grade III. (Categories B 2, C 2, B 3, C 3)	18·3	19·2
Grade IV. (Rejected)	4·4	5·1
Postponed	4·9	—

These figures, taken from the subsequent grading of recruits by the Boards of the Ministry of National Service, have been supplied by the Assistant to the Chief Commissioner of Medical Services for that Ministry.

PHYSICAL DEFECTS CLASSIFIED BY BODILY REGIONS.

Heart and Blood-vessels.

Non-organic cardiac abnormalities were present in 3·4 per cent. (338 cases) and valvular defects in 2·4 per cent. (243 cases) out of the 10,000. *Tachycardia*, with a pulse-rate over 100 at rest, formed the most frequent cardiac abnormality, 2 per cent. of all recruits (198 cases) showing this rapidity without any apparent organic derangement. At least 1 case in every 20 of rapid pulse was attributable to excessive cigarette smoking, and twice as many were associated with a history of acute rheumatism, influenza, or some other febrile attack, having in several cases lasted since an attack some years previously. It is to be noted that in all these cases the recruit was quite unaware of the rapidity, and several instances were met of men with pulse-rate of 130 or 140 who were doing constant and severe work as miners at the coal-face. Of these men with rapid pulse 59, having an average pulse of 110, appeared quite fit for Category A; while 31, with an average pulse of 118, but no other defect, were placed in B 1. Rather more were placed in low categories, and 9 were rejected altogether for tachycardia. *Palpitation*, with consciousness of the heart's action and some feeling of fluttering, choking, or oppression, but no sign of organic disease, was present in 37 cases; several of these were probably gastric in origin. *Irregularity*, without evident disease, of which the most definite type was the occurrence of extra systoles (7 cases), was present in 49 cases. The causes were much the same as those of tachycardia; and 11 cases appeared fit for general service. Subsequent experience in France, where the writer examined about 15,000 men as they left hospital, convinced him that a pulse-rate of slightly over 100 is of common occurrence and of no moment. Further, what has been said of cigarette smoking applies also to the condition known as "soldier's heart," in which overaction and dilatation were apt to be indefinitely prolonged even by moderate use of tobacco, and disappeared speedily when this was discontinued.

Mitral systolic murmurs were found in over 2 per cent. of all recruits. In one-fourth of these it was evident, from the variation of the murmur with respiration, from its situation away from a valve area, and from the absence of any cardiac symptoms or of embarrassment on severe exertion, that the murmur was accidental or had origin outside the heart altogether. The majority of these cases were placed in Categories A and B 1. On the other hand, 78 cases of mitral systolic murmur showed the definite symptoms and signs of a fully-established regurgitation at this valve, and these cases were either rejected altogether (37) or were classified as fit for sedentary work only, C 3 (41). There remained between these extremes 71 cases in which a definite and persistent systolic murmur was present, accompanied by few, if any, symptoms. These cases were regarded as attributable either to a temporary dilatation or to the slight endocardial nodular thickening which one frequently finds on post-mortem examination in persons who have during life had no cardiac complaint. Such a minute defect in the valve can have no practical effect on the course of the circulation, and to hold that a recruit should be rejected simply for the presence of a murmur and slightly leaking valve is to ignore the facts of hydro-dynamics and physiology embodied in the development of compensatory extra power in the heart muscle. In the doubtful cases the functional capacity of the heart to overtake extra work was tested by observing the effect on the pulse and respiration of making the recruit go through various violent exercises. As a result these cases were classed as follows: A, 17; B 1, 18; B 2, 13; B 3, 5; C 1, 10; C 2, 10. *Mitral presystolic murmur* was well marked in 40 cases, of which most had symptoms and were totally rejected. *Aortic murmurs* indicative of regurgitation at this valve were present in 50 cases, and these were all rejected on account of the difficulty of estimating the deterioration which has taken place in the heart's capacity, and the liability to sudden stoppage. Nevertheless, many of the men with aortic incompetence and hypertrophied heart had no knowledge of anything amiss and were doing steady laborious work. *Congenital heart disease* with cyanosis was present in 2 cases.

Varicose veins were found in approximately 5 per cent. of all recruits (492 cases), being infrequent below the age of 25 years. While a division into slight and severe cases is, of course, arbitrary, about 300 cases fell into the former and 190 into the latter group. Of the slighter cases most had no symptoms of discomfort and appeared fit for categories A and B 1. The severer cases were placed in categories for labour or sedentary work or permanently rejected. Of these 28 cases were accompanied by ulcer, 25 showed a tendency to eczema, and in 3 extensive phlebitis and thrombosis had occurred. It is noteworthy that discomfort and disability were not proportioned to the degree of dilatation in the veins. Many men with extremely tortuous veins expressed themselves as able to walk 20 or 30 miles without ill-effect, and the most troublesome cases appeared to be those of single long veins with distended valve-pockets.

Respiratory System.

Bronchitis formed the commonest respiratory malady (149 cases); of these, 87 appeared to be merely the transitory effect of the Scottish winter, and were found fit for foreign service. *Asthma* was present in 128 cases, and of these 60 appeared fit only for labour or sedentary work, while 20 were entirely rejected. *Tuberculosis* of the lung was either present or showed signs (dullness, harsh breathing, &c.) of former occurrence in 107 cases; of these, 72 were recent or active, having been treated in sanatoriums, and were rejected. It should be noted that these figures do not include persons under treatment in sanatoriums or "notified" as suffering from pulmonary tuberculosis, who did not appear before the medical board, but received statutory exemption under Army Council Instruction 471 of 1916. A history of *pleurisy*, with some resultant impairment of the symmetry or movements of the chest, was elicited in 93 cases; 56 of these, however, appeared quite fit for categories A or B 1. An operation for *empyema* had been performed in 19 cases, in 9 of which recovery had been complete. *Deformities* of the chest were present in over 1 per cent. of all persons; 11 cases had marked pigeon-breast, while 27 showed the pushing backwards of the lower end of the breast-bone, to which the name "funnel-chest" has been applied; *curvature of the spine*, with resultant chest deformity, was visible in 86 cases.

Digestive System.

The *condition of the teeth* at the age of 18 was in general sufficiently good for practical purposes, though the upper incisors were frequently found in incipient decay. The state of decay became progressively worse with the advance of age, and of the 10 000 recruits 928 had artificial teeth, while another 1120 had lost half their teeth at least, and were regarded as urgently in need of dental attention. It is to be noted that the complaint of dyspepsia was by no means proportioned to the degree of dental defect. Many recruits who were quite edentulous or who possessed only a few ragged and ineffective stumps expressed themselves as eating every kind of food and denied any indigestion, while frequently persons complaining of chronic gastric discomfort had had their teeth put in excellent order without much benefit. On the other hand, a septic condition of the teeth with deposit of tartar and gingivitis was frequently associated with dyspepsia and invariably with a deteriorated physique. With regard to actual pyorrhœa alveolaris not more than three cases were noted among 16,000 recruits whose teeth I personally inspected.

Dyspepsia formed a complaint in 256 cases, definite signs or history of gastric ulcer being present in 18 cases and of duodenal ulcer in 9 cases; laparotomy for some stomach condition had been performed in 20 cases. In 126 recruits an operation had been performed for *appendicitis*, but in 27 of these the operation had not been successful either by reason of pain or hernia in the scar or return of the internal pain; doubtless examination of a later generation will reveal a greater number of operations performed and a higher proportion of apparent "cures."

Hernia was found in 3·6 per cent. (363 cases). The slight cases, consisting merely of a bubonocele readily retainable by a truss, amounted to 105, and these were passed for general service; in 12 cases only was the hernia so large as to necessitate rejection. Of those cases which had passed through an operation in adult life about one-sixth were

found to have had recurrence of the hernia. The forms of hernia, other than inguinal, were much less common, there being 6 cases of ventral and 4 of femoral hernia among the 10,000 men.

With regard to less common conditions, *piles* were present and gave trouble in 158 cases, though, as a rule, the men were fit for category A or B 1; *fistula in ano*, 13 cases; *gall-stones*, 2 cases; *cirrhosis of the liver*, 2 cases.

Nervous System.

Defects connected with this system were present in over 3 per cent. of all recruits (322). *Infantile paralysis* was the most common, there being 66 cases, among which the leg was affected alone in 59, the arm alone in 5, and both arm and leg in 2. *Epilepsy* furnished in all 64 cases; when the fits were so seldom as one in several weeks the recruit was placed in a labour or sedentary category, although in 25 cases the fits were so frequent as to necessitate rejection. *Mental dullness* of a congenital type was noted in 44 cases, about one-half of these being fit for labour, the other half being rejected. *Neurasthenia* was present in 51 cases, alcoholism being also observable in many of these either as a cause or effect. *Stammering* occurred in 29 cases, mostly in men of good physique and mental attainments. Other nervous diseases occurred less frequently in the following numbers: neuritis, 15; effects of concussion, 12; disseminated sclerosis, 8; chorea, 5; locomotor ataxia, 5; general paralysis, 2; signs of meningitis, 6; hemiplegia, 6; progressive muscular atrophy, 4; dystrophy, 1; myelitis, 2; myotonia, 2. The number of total rejections for diseases of the nervous system was 76.

Goitre.

Enlargement of the thyroid gland occurred in 50 cases. The average pulse-rate was 86, and in 5 of the cases slight tremors were noted. Most of the cases originated in two districts, 24 coming from the oil-bearing northern slope between the Pentland Hills and Queensferry (*geology*, carboniferous limestone and shale) and 13 from the northern slope of the Peeblesshire and Moorfoot range of hills (*geology*, Silurian and Ordovician). The remaining 13 occurred sporadically over the area with a remarkable tendency to grouping in pairs. As to occupation, there appeared to be no special trade tendency to this affection, although 18 cases occurred among railway or shale workers and 15 among persons connected with farming. One case showed marked symptoms of Graves's disease, and in other 5 or 6 these were slighter, but the great majority were examples of simple goitre only. *Myxœdema* was noted in 2 other cases.

Genito-urinary System.

Bright's disease was present in 56 cases, and 22 of these were sufficiently severe to obtain rejection, most of the others being considered fit for Category C 2 or C 3. Many men complained of having had kidney trouble, but upon careful investigation most of these cases showed no albuminuria nor other symptom of nephritis, and had presumably had lumbago. *Diabetes* was found in 7 cases; *stone* in the kidney or bladder in 10 cases; *cystitis* in 14 cases. *Enuresis* formed a difficult complaint to classify, but, as a rule, it was possible to verify the recruit's statement, either by some corroborative physical evidence or independent testimony; this condition was severe in 19 cases. *Varicocele* was visible in 2 per cent. (202 cases), but in the vast majority gave no trouble whatever, and 156 cases were placed in A or B 1 category. *Hydrocele* occurred 36 times; and 52 individuals had one or both *testicles undescended*; contrary to the prevalent idea, in most instances of the last-named defect, the recruit had no discomfort, and 34 of the cases were quite fit for A or B 1 category. *Active venereal disease* was much less common than is generally supposed, and syphilis was found only 31 times, gonorrhœa 17 times, among the 10,000. No doubt many of the diseased conditions in heart, skin, nervous system, and bones were late results of syphilis, but even so the prevalence of these diseases did not amount to 3 per cent. in this area.

General Diseases.

Arthritis of a chronic or subacute type was found in 62 cases, and as a rule necessitated a low category or rejection; a history of *sciatica* was elicited in 50 cases; *myalgia* in the back, limbs, or chest formed a complaint in 203 cases, but in 156 of these it was assumed that exercise would benefit the condition, and the recruit was placed in Category A or B 1; *obesity* to an excessive degree was noted in 141 cases, and *anæmia* in 10.

Tuberculosis was found to affect 242 cases, showing itself in the lungs in 107, glands in 69, bones in 44, and various other organs in 22. (To the cases of old tuberculosis may be added 118 of the joint conditions and at least 42 of the cases of spinal curvature, thus making 402, or 4 per cent., of tuberculosis among all recruits. This does not include cases of old tuberculosis which had recovered without leaving any sign.)

Deformities.

Deformities, either congenital, developmental, or accidental, numbered 740, and formed, after circulatory disorders and tuberculosis, the most frequent cause of rejection (49 cases). In order of frequency the following deformities occurred: injuries of limbs (accidental), 272; flat-foot, 113; bunion, 103; curvature of the spine, 86; hammer toes, 84; hallux rigidus, 36; knock-knee 20; club-foot, 19; and wry neck, 7 times. *Injuries of the limbs* formed the most frequent cause of reduction to a labour or sedentary category, for a man may enjoy perfect health but an accident to his right hand may render him incapable of using a rifle; thus, out of 272 cases 93 were placed in categories B 2 and C 2, 66 in B 3 and C 3, while 33 were not accepted for service. *Flat-foot*, which was present to a marked degree in over 1 per cent. of all recruits, must be regarded rather as a peculiarity of conformation than as a disability, since those affected by it fell into categories in practically the normal percentage given above—e.g., A, 46·8; B 1, 21·2; B 2 8·8, &c. In a few cases only did the flat-footed man complain of severe pain and walk on the outer edges of his feet; while many of the men with complete absence of the plantar arch followed pursuits like that of shepherd, involving habitual long distance walking.

Joint diseases (mostly old tuberculosis with sinuses) occurred in the following order of frequency for different joints: hip, 41; elbow, 32; knee, 25; ankle, 8; jaw, 5; wrist, 4; shoulder, 3; in all, 118. Cases in which the elbow had been excised presented a completely useless limb and were rejected, whereas those treated by rectangular fixation were mostly fit for B 2 or C 2. Cases in which the knee-joint had been excised were also very helpless. Displacement of the *semilunar cartilage* of the knee was present or a history of this was given in 77 cases, but of these 59 were fit enough for categories A and B 1. *Rickets* caused marked deformity in 16 cases.

Skin Diseases.

The skin was affected to a noticeable extent in 3 per cent. (299 cases) with the following conditions: eczema, 66; psoriasis, 63; scabies, 29; dermatitis of various types, 25; severe acne of face and back, 23; seborrhœa, 20; ulcer of uncertain origin, 17; ichthyosis, 16; sycosis, 14; general alopecia, 8; lupus, 7; verrucosis (severe), 4; lichen, 3; favus, 2; molluscum contagiosum, 2. Of these, 35 were rejected.

Ear Conditions.

Slight deafness was present in 127 cases, marked deafness in 75, and there was a discharge from one or both ears in 95 cases. History of discharge from the ear at some previous period was very commonly elicited.

Eye Conditions.

The standard of vision was latterly fixed for general service at 6/12 in the right eye, with or without glasses, and 6/60 in the left eye. For B 1 and C 1 categories the recruit required to have in the right eye 6/24, which might be reached by the help of a lens of 6 diopters or less. For the lower categories he required vision sufficient for ordinary purposes. If, therefore, a recruit could see 6/12 with the right eye unaided and had no obvious defect his vision was satisfactory and the eyes were not further examined. The number of recruits who showed refractive error sufficient to prevent their reaching the general service standard unaided was 6·6 per cent., of whom 2·6 reached it with the help of glasses, 2·5 fell to B 1 or C 1, and 1·5 fell to B 2, C 2, B 3, or C 3.

Defects of the eye other than mere errors of refraction were present in 2·5 per cent. (246 cases), including 63 cases not accepted. These defects comprised: loss of eye, 55; amblyopia (with vision not more than 6/60 in one or other

eye), 47; dense corneal nebulæ, 38; squint, 31; cataract, 16; optic atrophy, 11; nystagmus, 7; ptosis, 7; keratitis, 5; choroiditis, 5; retinitis, 5 (including r. pigmentosa, 2); severe conjunctivitis, 4 (including trachoma, 2); epiphora, 4; optic neuritis, 3; severe iritis, 2; scleritis, 2; aphakia, 2; vitreous degeneration, 1; retinal detachment, 1. Ocular defects of marked degree are thus present in 9 per cent. of all recruits.

CONCLUSIONS.

1. Physical defects worthy of note are present in four-fifths of the adult male population.

2. Many of these develop after the age of 18 years; thus three men out of four are fit for general military service at age 18, but only two out of four by age 23.

3. Many of the defects are preventable or curable—e.g., defective teeth in 20 per cent. of men, varicose veins in 5 per cent., hernia in over 3 per cent., deformities of limbs in 7 per cent., skin diseases in 3 per cent.

4. There appears to be great scope for improvement of the general physique of the nation by medical examination of, and attention to, children and adolescents as regards tooth, eye, and ear defects, deformities, and early diagnosis of chest diseases and of congenital defects.

A Clinical Lecture
ON
THE TREATMENT OF ANTRAL SUPPURATION.

Delivered before the Fellowship of Medicine

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MR. PRESIDENT AND GENTLEMEN —Acute suppuration of the antrum of Highmore frequently occurs unnoticed; indeed, in the course of nearly every bad cold this sinus is involved. It is only, however, when there is swelling around the opening of the antrum into the middle meatus of the nose that the action of the ciliated epithelium is insufficient to drive the secretion from the antrum, so that definite symptoms occur due to the accumulation of pus or muco-pus in the antrum and consequent pain in the forehead or cheek. The condition usually clears up in a few days, although this may be made a great deal more certain by simple treatment. If the antra are carefully examined in a dark room, with a lamp in the mouth and the lips closed around it, it will be noted that the affected side of the face lights up imperfectly, and there is not the usual bright crescentic area immediately beneath the lower eyelid. Moreover, the eyeball, as seen through the pupil, will not be seen to light up and become visible in the dark as it usually does. In an acute case such as this it may not always be necessary to puncture and wash out the antrum. An inhalation of menthol will reduce the congestion of the nasal mucous membrane, which partially or completely blocks the communication between the antrum and the nose. Three or four times a day the patient should be directed to close his eyes and press on the nostril of the healthy side, and take short sniffs through the other nostril of the vapour arising from a jug of water to which a teaspoonful of 15 per cent. or 20 per cent. solution of menthol in spirit has been added. After this he should lie on the healthy side on a low pillow, so that any discharge from the antrum may flow into the nose and be blown out as it collects; he may at the same time usefully close the nostrils with the fingers while forcibly inhaling with the mouth closed, thus drawing the antral contents into the nose. After lying in this position for a few minutes the nose may be washed out with a warm alkaline lotion used as hot as can be comfortably borne. A simple mildly antiseptic nose-wash, which is isotonic for the mucous membrane, can be made by dissolving a teaspoonful of equal parts of salt, borax, and bicarbonate of soda, in a pint of warm water. Sometimes a high candle-power electric incandescent lamp, held close to the cheek, seems to assist in relieving the pain, and may be of slight assistance in restoring the mucous membrane of the infected antrum to its normal condition. If a tooth or any other cause of the condition is found, it must, of course, be dealt with. When, however, the menthol treatment fails to relieve the pain, and is not followed by an increase of muco-purulent secretions from the nose, or if there is any doubt as to the diagnosis, it is wise to puncture and wash out the antrum. This should always be carried out from the nose, and it will be found best to puncture the antrum below the attachment of the inferior turbinate with a Lichwitz trocar and cannula, which resembles a fine hydrocele trocar, except that it is rather longer. To anæsthetise the interior of the nose, I use a solution of equal parts of 20 per cent. cocaine and 1 : 1000 adrenalin. A small piece of wool held in nasal dressing forceps is dipped in the solution and is drawn gently along the inferior meatus of the nose, beneath the inferior turbinate, and this area thus rendered partially anæsthetic. A piece of cotton-wool about an inch long, and a quarter of an inch round, is now taken and held near the end by forceps and dipped in the cocaine and adrenalin solution until it is well moistened, but not dripping, and then carefully manipulated into the inferior meatus of the nose, and pressed upward and outward against the lower and outer surface of the inferior turbinate. A similar piece is now taken and placed beside it in the inferior meatus of the nose, and both are left for 15 minutes. The trocar and cannula and an ordinary Higginson's syringe are boiled, and a pint of warm lotion prepared. The salt, borax, and soda mixture previously prescribed can be quite well used. The lotion is more pleasant if it is as warm as can be comfortably borne. The packing is removed and the nose duly inspected, the trocar and cannula are then passed obliquely through the lower part of the nose, and the sharp point of the trocar made to come in contact with the inner wall of the antrum, immediately below the inferior turbinate. The obliquity of the trocar and cannula is then increased by bringing the shaft close to the anterior end of the septum nasi, and thus directing it backwards, outwards, and slightly upwards towards a point half-inch below the eyeball. It is usually best for the operator to stand up so as to hold the patient's head with his left hand and thus prevent any sudden movements, while the trocar is made to penetrate the antral cavity by a steady boring motion; care should be taken that this does not occur too suddenly, as otherwise the instrument may easily pierce the opposite wall of the sinus, and to avoid this it is useful to keep the right first finger pressed along the shaft of the trocar so that it may act as a stop. The trocar is now withdrawn and the patient directed to hold his head well forward and breathe through the mouth, while a Higginson's syringe filled with lotion is attached to the cannula. The syringing should be steady, with occasional pauses for the patient to take breath, as sudden increase or decrease of pressure inside the antrum causes pain. When the lotion returns clear it is best to blow in a little air to stir up any thick pus which may have collected in the lower part of the antrum and then wash through again. When completing the wash-out it is always wise to replace the lotion by air, which, after all, is the normal content of the antral cavity. Where a sample of the fluid contained in the antrum is required for bacteriological examination it is better to blow in air only at first till this is collected. In some acute and chronic cases, although the surgeon feels confident that the cannula is in the antral cavity and it can be felt to move within it, no fluid can be pumped in and none returns through the nose. In this case it is probable that the swelling of the mucous membrane around the normal opening from the antrum to the nose prevents fluid passing or that the normal opening is plugged by exudate. Occasionally also, especially in a traumatic case, such as one often sees as the result of war injury, a complete occlusion by adhesions may have taken place. Sometimes, again, the lotion at first flows out readily through the nose, but ceases after a few moments owing to the blockage of the exit from the antrum by fibrinous pus or exudate. In either case the Higginson's syringe should be removed, filled with air, and the antrum inflated, when the obstruction will generally be overcome. Where this fails to give the desired result I have found it best to take a second trocar and cannula and insert it immediately in front or behind the first to form an exit, and with this in position

lavage can always be carried out unless the antral contents are very thick. Occasionally a very hard bony wall between the antrum and the nose causes difficulty in puncturing, and may break off the point of the trocar. In this case puncture by the stronger curved Krause's trocar and cannula, if necessary under an anæsthetic, may be necessary to settle the diagnosis. For acute antral suppuration, then, a menthol inhalation, with or without lavage of the antrum, every two or three days, in most cases results in cure. Very rarely, indeed, is the operation to be described for chronic antral disease necessary.

Chronic cases of antral disease.—Here, also, repeated puncture and washing out may occasionally result in cure, but where the disease has existed for any length of time, say, for more than three or four months, and particularly where streptococci are present, simple washing out, even though often repeated, is rarely sufficient to cure. Moreover, even after a cure is apparently obtained the next time the patient gets a cold the infection not infrequently recurs; nevertheless, in the writer's opinion, unless time is a matter of extreme importance, it is usually desirable to wash out the antrum three or four times, at intervals of a few days, before operation is undertaken, as it can be demonstrated thus to the patient that washing out is not sufficient to cure, and moreover, the discharge will usually become less offensive, with a consequent lessened risk of chest complications after operation. Where a patient is very averse to operation I have occasionally washed out the antrum many times and obtained an apparent cure, but for most chronic cases operation will be sooner or later necessary.

THE SELECTION AND TECHNIQUE OF OPERATION.

When operation is decided upon we must be a little cautious in at once promising the patient a complete cure, for although I have never known a properly selected antral operation to fail in the cure of antral disease, it is necessary to remember that antral disease may be secondary to disease of the frontal sinus or anterior ethmoidal cells, the antrum at first acting only as a reservoir for pus secreted by these sinuses. Obviously, therefore, if free drainage of the antrum is provided while disease of these sinuses still remains pus will continue to gravitate into the antrum, and discharge will collect in it. We must, therefore, be confident that there is no disease of the frontal sinuses, ethmoidal cells, or superior maxilla before promising that the antral operation will completely cure the condition.

There is another point of extreme importance in connexion with antral disease. Where other sinuses are also involved the infection of the antrum, owing to its imperfect drainage and its large size, will be usually most severe. At any rate the pus contained in it will be much more commonly fœtid and the bacterial flora more varied. If, then, we operate on an infected antrum at the same time that we clear out the anterior ethmoidal cells we are allowing the ethmoidal region to come in contact with a very infective pus with the result that acute inflammation of this region, and meningitis, are liable to supervene. I have not had such cases myself, but two very good surgeons have described to me fatal results of exactly this type, and I therefore make it an invariable rule never to do anything to the upper regions of the nose until I have assured myself that no antral disease is present, or, if present, dealt with it by operation. Even if the nose is full of polypi and the antrum involved, I remove sufficient of these only to allow me, by operation, to provide free antral drainage and wait for some weeks until, as the result of constant washing out of the antrum, the discharge from this sinus is no longer foul and has almost ceased before dealing with the other conditions present in the nose.

In selecting an operation for antral disease, there is still another point to be borne in mind. Whatever operation is undertaken a permanent opening for drainage should never be made into the mouth; by this I do not mean that the so-called radical operation, in which the mucous membrane of the gum is turned up to permit of access to the antrum through the canine fossa and immediately stitched down again at the conclusion of the operation, should not be performed, but I maintain there are good reasons for never establishing a permanent drain from the antrum to an infected cavity like the mouth. Everyone who has had any experience of antral work must have met with many cases in which the alveolar operation has failed to effect a cure even after years of careful syringing. Yet in these very cases the condition completely clears up within two or three months if the nasal operation be performed and the opening into the mouth allowed to close. It is difficult to find statistics as to the percentage of cases in which the alveolar operation fails, but Logan Turner and Lewis state that, as far as their results go, only 25 per cent. of chronic cases—that is, cases in which the antral disease had existed for more than five months—were cured by the alveolar method of operation. My own experience is, of course, limited, but so far I have never met with a case in which the nasal operation has failed. Surely, then, it is wiser to at once perform an operation in which the prospect of cure is wellnigh certain rather than one in which a second operation will probably be required. Secondly, the alveolar method of treatment is contrary to the fundamental principles of surgery. Where else should we think of keeping a cavity containing pus carefully corked up for 23½ hours out of the 24 for the pus to be absorbed? But this is exactly what is usually done in the case of the antrum. A vulcanite plug tightly closes the opening into the mouth, and is only removed once or twice daily to syringe out the cavity. Occasionally the vulcanite plug is made hollow, so that there is a constant communication between the antrum and the mouth. But here the condition is even worse, for the greater part of the foul pus that drains into the mouth is certain to be swallowed. Moreover, particles of food and samples of the rich bacterial flora of the mouth are constantly passing upward into the antrum. In the nasal operation to be immediately described practically the whole of the inner wall of the antrum is removed, so that this space becomes, to all intents and purposes, a part of the nasal cavity, and whatever discharge there may be secreted by the antral mucous membrane is blown out on to a pocket-handkerchief almost as quickly as it is formed. Moreover, the antrum is now drained into a relatively aseptic cavity. It is probable that the posterior regions of the nose are free from organisms in at least 80 per cent. of ordinary healthy people [1]—some observers would raise this percentage to 92—and even where persisting nasal disease is the cause of the antral trouble the bacterial inhabitants of the two cavities will be very similar.

The *Caldwell-Luc operation.*—Perhaps the best known operation for chronic antral disease is the Caldwell-Luc or radical operation, in which a relatively large opening is made from the mouth into the antrum through the canine fossa; after turning up a flap of mucous membrane, and aided by this opening, the whole of the bony wall between the antrum and nose is removed. The buccal mucous membrane is stitched down in place at once and readily heals, usually by first intention. This operation is quite satisfactory, but in most cases is unnecessarily severe, as it is quite easy to remove the whole wall between the antrum and the nose without first making an opening into the mouth. Where, however, malignant disease is suspected or for some other reason, a careful examination of the interior of the whole of the antrum by direct division is desired, this operation is to be preferred.

The *nasal operation*, in which the whole of the antro-nasal wall is removed without first opening the antrum through the mouth, which is often associated with the name of Mickulicz, is the operation which I almost invariably perform and which I have never known to fail. I have occasionally performed it under local (cocaine) anæsthesia, but a general anæsthetic, very lightly given, so that the cough reflex is present during the whole operation, is much more convenient. A quarter of an hour before the operation the nose on the affected side is packed with a gauze strip soaked in 1 : 1000 adrenalin, care being taken that the packing fills the inferior meatus of the nose beneath the inferior turbinate. This greatly reduces the hæmorrhage, especially during the early stages of the operation, and makes it much easier for the surgeon to see what he is doing. As soon as the patient is under, the soft palate is pulled forward with a retractor and a plug of gauze, with tape attached, is pushed upward into the naso-pharynx and pressed firmly into position. The head is then slightly raised and the anterior two thirds of the inferior turbinate of the affected side is removed with

[1] StClair Thomson and Hewlett.

punch forceps or scissors and snare. A Krause's trocar and cannula is next introduced into the nose and the antrum punctured. The trocar is withdrawn and a blunt pilot introduced, and the inner wall of the antrum broken inward towards the nose. The opening into the antrum can now be seen, and the greater part of the antro-nasal septum can be chipped away. In doing this Luc's ethmoidal forceps cutting backward and Ostrom's forceps cutting forwards will be found most useful. In enlarging the opening in a forward and upward direction care must be taken not to interfere with the nasal duct, but this is not very likely to happen if ordinary care is taken, for the bone around it is generally hard. The antro-nasal septum is for the most part formed of a very thin bone, which is easily removed, except below, where a solid ridge is found to separate the two cavities. It is essential that this should be removed as completely as possible, so that any discharge that may collect in the antrum shall run into the nose and be blown out at once. The ridge is most conveniently removed by a special burr, and this instrument is of further value in smoothing off the edges all round the lower part of the opening which has been made. The essential point in the operation is to make the opening as large as possible. The next step is to examine the antral cavity. Where necessary polypi can be curetted away, but, generally speaking, the less the lining mucous membrane is interfered with the more rapid and complete will the recovery be. No packing is required.

Recently the *Canfield-Ballinger* operation has been advised; it has been pointed out that the removal of the anterior two-thirds of the inferior turbinate decreases the area for warming and moistening the inspired air. In this operation, therefore, the antro-nasal wall is only removed below the attachment of the inferior turbinate, but the opening is carried well forward by the removal of part of the nasal process of the superior maxilla, so that the anterior angle of the antrum is well exposed. I have performed this operation a few times, but I have found that the opening into the antrum has some tendency to close, and I have never seen any serious trouble follow the removal of the anterior two-thirds of the inferior turbinate. Where operations for the cure of antral suppuration fail, and I have seen many failures, the trouble is almost invariably that too small an opening is made from the antrum to the nose, and I would most strongly urge the complete removal of the bony wall separating the two cavities.

After-treatment.—The after-treatment is very simple. On the day following the operation the antrum is washed out with a bent tube passed into it through the nose and a Higginson's syringe. Ordinary nasal lotion is used, and the patient is directed to bend his head forward and breathe through the mouth, and to at once raise his hand if the lotion passes into his pharynx. He very soon learns to pass the antral tube himself, and should syringe out the cavity twice daily. It is essential to impress upon the patient the importance of thoroughly cleansing the antrum, and not until he feels assured that this will be carried out regularly and systematically should the surgeon relax his direct supervision. By the end of three weeks or a month the discharge will have become much less, and it will in most cases be sufficient to thoroughly cleanse the antrum once daily. At the end of three months it will generally be safe to leave off syringing for longer and longer intervals until, with the complete cessation of all discharge, the case may be considered cured.

THE SCOTTISH MIDWIVES' ASSOCIATION.—At the last meeting of the Council of the Scottish Midwives' Association the question of the relations between the medical practitioner and the registered midwife was discussed. The Association had before it evidence that in Scotland medical practitioners in working-class practices availed themselves of the assistance of the "friendly neighbour" when a certified midwife could have been obtained. The Council of the Association in these circumstances have drawn attention to the advantages that would accrue to both mother and infant if the midwives enrolled at the Central Midwives Board were given proper opportunity to carry out their vocation. It is to be hoped that the Association will make public the grounds on which they consider that in Scotland the registered midwife is especially neglected, or the "friendly neighbour" preferred.

OPHTHALMIC PHYSICIANS AND THE ADVANCEMENT OF OPHTHALMOLOGY.[1]

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THE present paper had its origin when a vacancy recently occurred on the staff of our hospital and I urged that what was really required was an ophthalmic *physician*, not an ophthalmic *surgeon*. My arguments in support of this course were met by the answer that it was "not done" at any other hospital, and, secondly, that there were no men available or educated for such a post. I was then challenged to bring the subject forward for open discussion.

Cases requiring operation or direct surgical treatment form such a small part of the whole of our work that we have to be responsible for a far larger clinic than we can personally attend to if it is to yield sufficient operative material for the study and advancement of that branch of our science. In order to cope with this difficulty large numbers of men are educated, given posts as clinical assistants, and entrusted with a large measure of responsibility. We avail ourselves of their services for years, during which they become able ophthalmic observers, but are given no training in ophthalmic surgery and no chance of learning to operate, while their training in, and knowledge of, medicine is insufficient to make them ophthalmic physicians.

Progress on Medical Lines.

Further progress in ophthalmology, as far as one can see, will be mainly on medical lines, and will require men with a physician's training and experience. Progress on surgical lines is limited and can only result from large experience. There may be another and yet another new operation for glaucoma; we can still discuss the best form of cataract extraction; and someone may some day invent a successful operation to cure detachment of the retina or conical cornea, though I doubt if success is likely to come from the surgical side in the treatment of these diseases.

On the medical side, however, there are endless possibilities which we try to tackle with our second-hand scraps of medical knowledge, picked up from such general medical information as may be current, but with no means of studying the problems from a strictly medical standpoint. Of course, we have physicians attached to our ophthalmic hospitals, but their position is that of consulting referees; they do not have patients of their own. To them we refer cases, but the result is not very satisfactory. There is divided responsibility, or more generally the responsibility rests with the surgeon, even in well-marked medical cases, since the eye-symptom is the most obvious factor. This is specially the case in hospital practice. In private practice the responsibility is more often shared, though even there the need of a physician who can grasp the full importance of the ophthalmic problem is acutely felt. In doubtful cases the physician seldom suggests a cause, and, having returned a negative to the question we have asked, the problem ceases to interest him. Where the diagnosis is obvious he shirks treatment, since the eye-symptom is the guiding factor; and where the case is transferred to the physician he is seldom in a position to study it from the ophthalmic point of view. At present our consulting physicians are not appointed for their knowledge of ophthalmology, but for their knowledge in some branch of medicine, generally with a leaning to neurology. We should still require the consulting physician for special cases, but what we require is *ophthalmic physicians*, who do their own ophthalmic work and have to live, so to speak, with their ophthalmic failures, and to study ophthalmic cases from a physician's point of view and with a physician's experience.

Special Problems for the Physician.

The need of the physician in ophthalmology seems to me so obvious, that I will not weary you with elaborating the point, but will merely mention some of the most noteworthy instances.

1. The various vascular conditions; variations in blood pressure, arterio-sclerosis, vascular degeneration, thrombosis,

[1] A paper read at a meeting of the Ophthalmological Section of the Royal Society of Medicine on Nov. 5th, 1919.

and all the allied conditions associated with renal, hepatic, and cardiac diseases.

2. The diseases of the central nervous system, not only those of more or less obvious central nerve disease—tabes, disseminated sclerosis, cerebral tumours, ocular paralyses—but the many obscure ocular maladies which fall between the surgical and medical sides of ophthalmology; unexplained optic atrophies; headaches of apparently visual origin, but without ocular symptoms as yet within our range of diagnosis.

3. The many toxic or septic conditions giving rise to definite ocular disease, such as irido-cyclitis, in which the present position is most unsatisfactory. At present we refer the case to the consulting physician, dentist, pathologist, and all the rest, and get a series of negative reports, and the case comes back to us for empirical treatment; whereas it ought to come back to the physician and live with him until he has found a cause. Our training and means of research are totally inadequate to the scientific investigation of medical cases. Toxic conditions, giving rise to iritis, cataract, retinal changes, in diabetes, albuminuria, syphilis, tubercle, septic and other conditions, and toxæmia from drugs, form a list too long to enumerate.

4. The various nutritional diseases, giving rise to corneal ulcers. These cases I consider peculiarly disgraceful to us, especially the children with recurrent corneal ulcers, which defy local treatment and result in permanent corneal nebulæ.

This classification by no means exhausts the medical side of ophthalmology, but may be sufficient to show how totally inadequate is our education to deal with a very large proportion of our cases. The fact that we are educated as surgeons tends to dull our keenness in and power of investigating the primary causes of certain ophthalmic problems. We are very loth to stray beyond the orbit, and our education is not wide enough to enable us to do so with profit.

Cataract and Glaucoma; Myopic Detachment of the Retina.

Take the case of cataract. Here we know that, in the ultimate result, we can operate to relieve the worst of the symptoms. We look with suspicion on any non-operative system of treating cataract. Most of these systems depend on some local application to the eye, and are not based on any investigation as to the cause. We know too well the fallacies of the results claimed for this or that system of drops "dissolving" cataracts, and we rightly avoid anything that savours so strongly of quackery.

But if we consider the extraordinary variations in the rapidity of progress in some young or middle-aged cases of cataract—how they will start rapidly, and then become quiescent, or even improve—surely there is sufficient evidence that they are due to some constitutional cause beyond our power of recognition as *surgeons*. The causation of cataract requires a more subtle investigation than we can give it.

Take again the glaucomas. I cannot see how any thoughtful man can be satisfied with either the surgical diagnosis or treatment of many of them. A proportion of them are due to anatomical causes, and are relieved or cured by surgical means. But there are a number which defy surgical treatment, and do not exhibit any anatomical cause; yet they progress, their discs show deep cupping without any evidence of increased tension, and we are driven to the supposition that they have increased tension when we are not looking. Some of the acute glaucomas, too, show a virulence for which no anatomical explanation is sufficient. While the actual treatment of the state of hypertension must remain in surgical hands, yet there are many questions in causation and treatment which require to be investigated by the physician. It is not to our credit that, glaucoma having occurred in one eye, we should be so prolific in theories and so ignorant as to its causation that we are unable to prevent its onset in the other, except by operation. Yet we rarely refer our cases of glaucoma to our physician, probably because we know he is not sufficiently familiar with the condition to be of any real help.

For many years I studied myopias, and convinced myself that they were often due to constitutional causes, taking the view that the sclerotic became soft and yielded to normal pressures. I still think so. But I gave up the subject, because I was not enough of a physician to follow it up. Here, too, the fact that we can relieve the symptoms by correcting the error of refraction lulls us into thinking that we are treating the disease; which, however, is far from the case.

Our attitude towards detachment of the retina is even more hopeless. Even if we leave out of consideration the detachments in highly myopic eyes, which, according to some, have an anatomical cause, yet still we have detachments occurring in emmetropes, or in eyes with only a low degree of myopia. A detachment having occurred in one eye, it is more than probable that it will occur in the other. Yet we are incompetent to give any advice, based on knowledge of causation, to prevent such a calamity. Our surgical treatment of these cases is, on the whole, a failure. One per cent. would be a high average of success. Surely we should do well to hand the lot to the physician, and see what he can make of them.

The Education of the Ophthalmologist.

The education of the ophthalmologist is primarily at fault. We insist in the first place that a man must pass the highest examination in general surgery, which it is true gives us an exceptional type of man, but which has practically no bearing on eyes. He wastes years in acquiring the requisite anatomical and surgical knowledge to pass this examination when his time would be better spent in acquiring some knowledge of medicine and his own specialty. It is by no means unusual to find amongst ophthalmic surgeons men who not only confess to ignorance of the medical side of ophthalmology, but who seem to glory in their detachment from medicine. At present we act as eyes to the physician, but I hold that the physician should see for himself, and he requires a larger experience than can be derived from studying only special cases.

I do not expect much support from ophthalmic surgeons on the medical side of the question, for the surgeon is an extraordinarily self-satisfied man, and generally thinks himself at least the equal of the physician on the medical side of his art, a position justified, perhaps, by the small amount of help at present given by the physician. On the surgical side, however, I hope to carry conviction.

The actual surgical work of the ophthalmologist forms only a small proportion—not more than 1 or 2 per cent.—of the whole mass of work to be done. As at present arranged, any man going in for eyes is supposed to be an "ophthalmic surgeon," and must assume himself, and be assumed to be, capable of doing any ophthalmic operation. Yet what has his training been, and what opportunity has he had of dealing with operative cases? A man may work 10 to 15 years at our leading ophthalmic hospitals and never do a major ophthalmic operation. Yet he is a highly trained ophthalmologist except in operative skill, which he must gain in the school of experience—expensive alike to himself and his patients—if he is ever to get on the staff of a hospital and become an efficient ophthalmic surgeon. In due course he will *have* to undertake his first major operation. He cannot under the present system decline. He is an ophthalmic surgeon, and he must either undertake the operation or put himself into an inferior rank and pass the case on to another.

The war has brought us many "ophthalmic specialists" who are in no way ophthalmic surgeons. In a case known to me one of them came across a case of cataract. He did not feel himself competent and got another man to "help" him with the operation. Unfortunately, he showed but little wisdom in his choice of a helpmeet. He chose a peculiarly incompetent but confident young man, who had never been trusted to do any but the simplest operations. Between them they operated, with the natural result. I have not heard what happened to the other eye.

Difficulties of Teaching Operative Work.

The question of teaching operative work is a very difficult one. It would obviously be impossible and undesirable to teach operative work to the large number of men passing through our hospitals seeking ophthalmic training. They cannot all become operators. It would be unjust to the patients and to the hospital. Ophthalmic surgery differs from all other surgery in that there is no gradual road to competence. You cannot allow a man to begin an operation say, for extraction of cataract and, if he gets into difficulties, step in and set things right. The mischief is

done, and men have only two eyes. Instructing men in eye operations is a most painful proceeding, even when they have watched and helped you at previous operations. From the introduction of the speculum to its removal there is often a series of mistakes and clumsiness, even in such operations as tenotomy, advancement, or excision.

There are many distinguished ophthalmologists who are in no way fitted to be surgeons. They are either innately clumsy, over-confident, or hopelessly nervous and anxious, so that they are quite incapable of doing justice either to themselves or their patients. One of the best ophthalmologists I have known was constitutionally unfit to operate; over-conscientious, he was always unhappy at his operations, and could never do himself justice; his failures caused him acute distress and sleepless nights. Yet there was no way out for him.

It would, I think, be better for the profession if ophthalmic operations were in fewer hands. Such an arrangement would tend not only to a higher standard of operative skill, but to enterprise and progress in surgical treatment. The surgeon, being no longer required to treat cases essentially medical, would be free to devote himself with a single eye to the advancement and perfection of surgical methods, and would have in addition increased opportunity for their practice. Surgeon and patient alike would benefit. It would then be possible to have private ophthalmic hospitals, accustomed to and equipped for ophthalmic operations, instead of being dependent upon nursing-homes, where eye operations are infrequent and the nursing and equipment unsatisfactory. The present position is not fair to the public, and is not to the honour of ophthalmic surgery, nor to its profit. It would be far better for all concerned if we recognised ophthalmic physicians as well as ophthalmic surgeons.

Conclusion.

My remedies for the present conditions would be:—

1. To improve ophthalmic education.
2. To appoint ophthalmic physicians to our hospitals.

In place of the Fellowship I would substitute an ophthalmic qualification, and it should be possible to qualify medically or surgically. The surgical qualification would require evidence of operative skill. Even for an ordinary medical qualification, a man is required to have attended his 20 or 30 cases of midwifery. Is it too much to ask that he should show evidence of some operative skill in ophthalmic surgery before he is admitted as an ophthalmic surgeon?

These changes would take time. But the recognition of ophthalmic physicians and their appointment to hospitals could be effected at once. They should attend out-patients and have beds at their disposal. They should see all classes of cases, but should be relieved of all operative work. The surgeons, on the other hand, would refer their medical cases to the physician. This would provide a larger number of ophthalmic men to deal with the ever-increasing mass of ophthalmic work.

This system would, I believe, be of advantage both to the physicians and surgeons, both in hospital and private work, and would redound to the credit and advancement of ophthalmology.

A MEDICAL APPOINTMENT AT OMAGH.—Extraordinary interest has been manifested by the Omagh Guardians in the election of a medical officer for one of the dispensary districts. On Nov. 22nd, out of a total board of 84 there were 83 members in attendance, to decide the fate of two candidates—Dr. B. Lagan and Mr. J. A. Cunningham—who at a previous election had achieved a tie, each receiving 40 votes, and so rowdy was the meeting on that occasion that the election was adjourned. On the second occasion Dr. Lagan received 42 votes and Mr. Cunningham 41; but before the election a letter was received from a solicitor, giving notice that three members of the board were disqualified from voting, and claiming that their votes should not be accepted. According to report they had voted for the candidate who was elected, in which case the report amounts to a suggestion that the election may still be challenged; but, to quote a local paper: "Beyond a few angry words nothing untoward occurred, and the services of a body of policemen who were in the vicinity of the workhouse in the event of disturbances were not called for."

THE VALUE OF THE COMPLEMENT-FIXATION TEST IN GONOCOCCAL INFECTIONS.

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THE syphilologist has a great advantage over the specialist in gonorrhœa, both in the diagnosis of obscure cases and in treatment. In diagnosis he has the Wassermann test, which is not only of the greatest service in elucidating obscure and latent cases, but also serves to show whether treatment has been effective, and when repeated at intervals whether the apparent cure has been maintained. In treatment he has drugs having a specific action on the spironema. The clinician who treats gonorrhœa has no such aids, though gonorrhœa is quite as serious a disease as syphilis, and there are without doubt far more cases of unsuspected gonorrhœa than of latent syphilis.

In dealing systematically with a large number of cases of gonorrhœa we have been struck by two difficulties which hardly occur in syphilis. In the first place there is the difficulty of establishing a diagnosis in the absence of gonococci in the urethral discharge, or even in the presence of Gram-negative cocci where there is no time or opportunity for culture. In the second place there is the difficulty of establishing a standard of cure. The most stringent clinical standard cannot approach in accuracy a series of serum tests. The utmost the clinician can do in gonorrhœa is to attempt in an apparently cured case by means of provocative injections of vaccine, silver-nitrate injections, instrumentation, prostatic massage, &c., to cause the reappearance of pus cells and gonococci. If no pus and no gonococci appear the patient is assumed to be cured; nevertheless, relapses do occur.

It must be remembered that the complement-fixation test in gonorrhœa is not comparable, except to some extent in technique, with the Wassermann test. This is a point often overlooked, yet of primary importance in the interpretation of results. The Wassermann is a test of the damage done to the tissues by the spironema. If this has not gone too far complete destruction of the organism causes cessation of damage, and a negative reaction follows. The serum test in gonorrhœa is a true antibody test, and is therefore not a test of damage but of resistance. It is thus comparable to Noguchi's true spironema antigen test, which becomes positive as the patient improves. The wide range of the Wassermann test also renders it more useful than the gonococcus test can be. In syphilis it is not uncommon to find sera which, with heart extract (and especially cholesterinised extract), will fix 20 or more doses of complement. In gonorrhœa it is rare to find more than 6 or 7 doses fixed; the highest positive we have met with, excluding cases where large doses of vaccine have been given, fixed 10 doses.

Complement-fixation Test in the Determination of Cure.

We began this study in the hope that in the complement-fixation test we might find help in both the difficulties alluded to—namely, in diagnosis and, more particularly, in determining the grave question as to whether a patient can really be considered cured, without merely turning him out in the hope that he is cured. We think that we have evidence to prove the definite utility of the test in diagnosis. As regards a test of cure we at present hold open minds, but we have formed three very definite impressions, viz.:—

1. That no person suffering from gonorrhœa can be regarded as doing well and on the way to cure until he has shown a strong positive reaction, independent of an artificial reaction the result of large doses of vaccine. (What we call a strong positive reaction will appear subsequently.) The majority of our cases have either had no vaccine or only small doses of stock polyvalent gonococcus vaccine—not more than 600 millions. Such doses do not, in our experience, produce a strong positive, so that such a reaction in these cases may be considered to be an indication of a genuine immunising response on the part of the patient.

2. Detoxicated vaccines, on account of the much higher dosage employed, entirely obscure the immunising response.

We find that a dose of 1000 millions or upwards of detoxicated vaccine will almost invariably produce a strong positive reaction within a few days. We think we have evidence to show that this is a purely artificial rise, and by no means represents the same immunising response as a natural rise without vaccine. Several cases, which previous to the administration of detoxicated vaccine had shown no gonococci in smears, have begun to show them after large doses, and have not manifested that clinical improvement which we generally find after a natural production of a strong positive reaction. In our opinion, while detoxicated vaccines are strongly antigenic as regards the production of an antibody of the character manifested in complement-fixation tests, there is something missing in the true immune antigenic sense.

3. The natural course of the immunity curve, so far as this is represented by the fixation test, is, in our experience, as follows:—(*a*) Recent cases show a strong positive by the ninth or tenth week from the date of first discharge, if doing well, and this begins to fall in three or four weeks. (*b*) Second or later attacks, or relapses, show a slower rise, not reaching a strong positive till the fourteenth week, or later, but once having reached it they tend to maintain that level longer than recent cases. The explanation of this is probably that in a relapsed case the resistance is less, and consequently, the immunising response is delayed in appearance and needs to be exerted over a longer period to effect the final disappearance of the organism.

It follows from this that no one can be considered as even on the way to cure until he has shown a strong positive reaction. From this point, coincident with clinical improvement, his reaction should decline. Unfortunately it is not possible, for various reasons, to keep patients in hospital until a complete negative is shown. But we have found that those cases did best which showed an early strong positive and a subsequent fall while in hospital. On the other hand, the prolonged maintenance of a strong positive is an indication of a focus still present and active.

We have now got records of 625 cases on whose sera 840 tests have been performed during the last few months. As will be seen, the majority of these were sent into hospital for other diseases, mostly syphilis and soft chancre. Some of these gave positive or partial positive results, and these were examined and questioned as to history. In this manner we discovered active gonorrhœa in a number of unsuspected cases, and a history of the disease in a number more.

The standard of clinical cure adopted has been as follows:—

One clear week without treatment.
No morning discharge.
First and second urines clear, or at most only a few threads.
Urine normal after prostatic massage.
Smear after prostatic massage negative to pus cells and gonococci.
Negative smears after irrigation with silver nitrate 1/1000, and after two successive bougies.
No focal reaction after a provocative dose of 200 millions of stock gonococcus vaccine.
Urethroscopic appearance normal.

This standard appears to be more severe than that advocated by Simpson and Clarkson in THE LANCET of Nov. 30th, 1918. We do not, however, make routine cultures. The number of cases we have to deal with makes this impossible, and in our experience it is not worth the labour involved. While a positive culture is of definite value as excluding cure, a negative one is by no means a proof of cure.

One of us (H. B. F. D.) is entirely responsible for the clinical work, and the other (A. H. P.) for the serological work. The technique employed was that described by one of us (A. H. P.) in THE LANCET of May 10th, 1919.

Explanation of Groups.

We have divided the results into four groups according to the positivity of the test: Group I., where there is complete fixation of 5 M.H.D. of complement we call strong positives; Group II., where there is complete fixation of 4, but not 5, M.H.D., we call moderate positives; Group III., where there is complete, or nearly complete, fixation of 3, but not of 4, M.H.D., we call weak positives and doubtfuls; Group IV., where there is complete lysis in all the tubes, or at most a trace of inhibition in the 3 M.H.D. tube, we call negatives.

As denoted by the signs in common use,

Group I. = +++
Group II. = ++± and ++−
Group III. = +±− to ±−−
Group IV. = +−− and −−−

Our grouping is made on the result of the first test in each case.

Of the 625 cases 53 fall in Group I., 66 fall in Group II., 165 fall in Group III., 341 fall in Group IV.

Analysis of the Different Groups.

Group I. Strong positives.—Of the 53 in this group, 40 were known to be suffering from gonorrhœa at the time; 2 were found to have gonorrhœa when examined after the test; 2 gave a history voluntarily of previous gonorrhœa; 4 were found to have a history of previous gonorrhœa when questioned after the test; 5 gave no history and showed no clinical signs of the disease.

If we exclude one case whose history goes back five years, together with the last 5 cases, 47 out of the 53 (= 90·4 per cent.) agreed clinically or in history.

Of the 42 who had gonorrhœa at the time of the test 16 (= 38 per cent.) had complications—viz., arthritis, 1; epididymitis, 11; vesiculitis, 1; epididymitis and arthritis, 1; epididymitis and vesiculitis, 1; arthritis and prostatic abscess, 1. Eighteen of these cases (= 42·8 per cent.) were second or later attacks or relapses; 27 (= 64·2 per cent.) were either later attacks or relapses, or had complications; 15 were uncomplicated first attacks.

Several cases had been treated with ordinary polyvalent gonococcus vaccine, but only one is known to have had a higher dose than 200 millions; this man had up to a last dose of 600 millions 15 days before the date of his first test. This is not sufficient to bring up a strong positive reaction. The average period since the onset of the last attack or relapse was 10½ weeks, the shortest being 13 days, the longest 23 weeks.

A few cases in this group are of interest.

(2462) First attack; has syphilis also; uncomplicated except for a severe prostatitis lasting four months; completely recovered except that the prostate is still slightly enlarged; several cultures have yielded only staphylococci and streptococci.

Tests: 1st 11 weeks after onset +++
2nd 13 ,, ,, ,, +±−
3rd 14 ,, ,, ,, ±−−
4th 17 ,, ,, ,, +−−

(2502) Second attack; arthritis and prostatic abscess, both now completely cleared up; still has considerable pus, but no gonococci have been found for several weeks. This man has given a strong positive on five occasions. He probably still has an active focus.

(2525) This man was sent in for soft chancre, and denied having had gonorrhœa. His serum was sent for a Wassermann, and the gonococcus test was also done. As the result of this was a strong positive he was examined, and pus was expressed from an enlarged prostate. A provocative dose of vaccine produced a general reaction. No gonococci were found by repeated smears and cultures. He was treated as a gonorrhœa patient and discharged three weeks after the last test.

Tests: 1st ... ... +++
2nd 14 days after 1st test ++±
3rd 22 ,, ,, ,, ++−
4th 38 ,, ,, ,, +±−

(2751) First attack; had epididymitis overseas, resolving on admission here; still shows gonococci in smears, though after the first test he was put on detoxicated vaccine, and has had up to a last dose of 10,000 millions.

Tests: 1st 14½ weeks after onset +++
2nd 19½ ,, ,, ,, ++±

(2807) First attack; uncomplicated; made steady improvement and was discharged one week after last test.

Tests: 1st 17 weeks after onset +++
2nd 19 ,, ,, ,, ++−
3rd 21 ,, ,, ,, +±±

Group II. Moderate positives.—Of the 66 cases in this group, 48 were known to be suffering from gonorrhœa at the time; 4 were found to have gonorrhœa when examined after the test; 5 gave a history voluntarily of previous gonorrhœa; 3 were found to have a history of

previous gonorrhœa when questioned after the test; 6 gave no history and showed no clinical signs of the disease.

The history of three goes back 13, 14, and 17 years. If we exclude these together with the last six cases 57 out of the 66 (= 86 3 per cent.) agreed clinically or in history.

Of the 52 who had gonorrhœa at the time of the test, 10 (= 19·2 per cent.) had complications—viz., arthritis, 1; epididymitis, 7; epididymitis and scrotal abscess, 1; cystitis, 1.

Of the 52 cases of gonorrhœa in this group 15 (= 29 per cent.) were second or later attacks or relapses; 21 (= 40·4 per cent.) were either later attacks or relapses, or had complications; 31 were uncomplicated first attacks. The average period since onset was the same as in the first group—viz., 10½ weeks.

The following are cases in this group.

(2552) First attack; admitted here one month later with a resolving epididymitis; no gonococci seen since 10 days before last test; steady improvement; discharged 11 days after last test.

Tests: 1st 9 weeks after onset + + ±
2nd 16 „ „ „ + − −

(2590) First attack; epididymitis; also soft chancre; improved rapidly; discharged 14 days after last test.

Tests: 1st 3 weeks after onset + + ±
2nd 7 „ „ „ − − −

(2611) Second attack; no complication; came in with a muco-purulent discharge, but no gonococci were ever found by smears or cultures; the source of infection, however, was traced and was found to be suffering from gonorrhœa; discharged six days after last test.

Tests: 1st 11 weeks after onset + + ±
2nd 14 „ „ „ + + ±
3rd 20 „ „ „ + ± −

(2627) Second attack; no complication; no gonococci seen till put on detoxicated vaccine, when pus and gonococci became plentiful; has had up to a last dose of 10,000 millions; still under treatment, showing gonococci and much pus.

Tests: 1st 23 weeks after onset + + +
2nd 26 „ „ „ + + +
3rd 30 „ „ „ + + +

(2733) Second attack; arthritis and gleet on admission; no gonococci seen here; improving, but still under treatment; has syphilis also.

Tests: 1st 19½ weeks after onset + + −
2nd 21 „ „ „ + + +
3rd 23 „ „ „ + + +
4th 30 „ „ „ + + +

(2755) First attack; epididymitis; no gonococci found for several weeks, but pus till four days before last test; discharged seven days after last test.

Tests: 1st 5 weeks after onset + + ±
2nd 9 „ „ „ + + +

Group III. Weak positives and doubtfuls.—Of the 165 in this group, 93 were known to be suffering from gonorrhœa at the time; 4 were found to have gonorrhœa when examined after the test; 11 gave a history of gonorrhœa previously; 3 were found to have a history of gonorrhœa when questioned after the test; 54 gave no history, and showed no signs of gonorrhœa.

The history of four goes back 7, 7, 10, and 15 years. If we exclude these with the last 54, 107 (= 65 per cent.) had gonorrhœa, or gave a recent history; 58 (= 35 per cent.) had no recent history and no clinical signs.

As this group includes nine possible readings, it seemed that perhaps it might be split into subgroups. It is not suggested, on our present limited experience, that this has much practical value; but if partial inhibition in the second tube be taken as the dividing line, those above being called weak positives, and those below doubtfuls, the following is the result: (*a*) weak positives, 75 cases; 54 (= 72 per cent.) were positive clinically or by history; (*b*) doubtfuls, 90 cases; 53 (= 58·9 per cent) were similarly positive. That is to say, the more positive the result the more likely the diagnosis of gonorrhœa. It must, however, be remembered that these figures refer to the first test only. When the test is repeated in two or three weeks very different results are, as a rule, obtained. Non-gonorrhœa cases from doubtful usually become negative, occasionally remain doubtful, this being no doubt due to experimental error, which further experience may diminish. Gonorrhœa cases show a rise or fall according to the duration of the disease and the progress the patient is making. It must be emphasised that one weak positive or doubtful test is of little value in diagnosis and of no value whatever in prognosis.

Some cases in this group will illustrate this.

(2491) Second attack; uncomplicated; no gonococci found in this attack by smears or cultures; rapid improvement under treatment; discharged ten days after last test.

Tests: 1st 11 weeks after onset ± − −
2nd 13 „ „ „ − − −

(2503) First attack; epididymitis almost resolved at time of first test; rapid improvement; discharged 14 days after last test.

Tests: 1st 16 weeks after onset + − −
2nd 17 „ „ „ ± − −

(2628) First attack; double epididymitis, severe vesiculitis, and prostatitis; very resistant to treatment of all kinds; gonococci present for over three months despite energetic treatment; now beginning to show some improvement. A case of poor resistance.

Tests: 1st 7 weeks after onset + ± −
2nd 10 „ „ „ + ± +
3rd 12 „ „ „ + − −
4th 17 „ „ „ + + ±

(2630) Second attack; also old syphilis; urethral condition improving, but still much pus; possibly only secondary infection now, as no gonococci have been cultured after repeated attempts.

Tests: 1st 13 weeks after onset + + −
2nd 16 „ „ „ + − −
3rd 18 „ „ „ + − −
4th 23 „ „ „ + + +

(2631) First attack; uncomplicated; very resistant to all treatment; gonococci were present after four months' treatment, including detoxicated vaccine; still much pus.

Tests: 1st 13 weeks after onset ± − −
2nd 16 „ „ „ − − −
3rd 18 „ „ „ ± − −
4th 22 „ „ „ + + ±

Note.—The second test followed a dose of 600 millions of stock gonococcus vaccine, and is presumably a "negative phase" result. The fourth test was after reaching a dose of 2500 millions of detoxicated vaccine.

(2726) First attack; severe prostatic abscess; a troublesome and resistant case; condition improved very slowly at first, but there has been rapid improvement during the last fortnight.

Tests: 1st 5½ weeks after onset + + −
2nd 7½ „ „ „ ± − −
3rd 10 „ „ „ ± − −
4th 14½ „ „ „ + + ±

(2727) First attack; severe arthritis; in hospital overseas for three months before admission here; arthritis improving slowly; general condition poor; T.A.B. and detoxicated vaccine; gonococci present up to three weeks ago.

Tests: 1st 13 weeks after onset + ± −
2nd 15 „ „ „ + ± −
3rd 17½ „ „ „ + − −
4th 21 „ „ „ + + +

(2743) First attack; uncomplicated; slow improvement; gonococci until two days before third test; still under treatment.

Tests: 1st 4½ weeks after onset ± − −
2nd 6½ „ „ „ + + −
3rd 9 „ „ „ + + ±
4th 13½ „ „ „ + ± −

(2744) Second attack; uncomplicated; rapid improvement; no gonococci seen since day of admission.

Tests: 1st 1 week after onset + − −
2nd 5½ weeks „ „ + + ±

(2760) First attack; in hospital overseas 2½ months before admission here; arthritis improving on admission; urethral condition never much trouble; discharged 14 days after last test.

Tests: 1st 12 weeks after onset + ± −
2nd 14 „ „ „ − − −

(2868) First attack; epididymitis now resolved; still thin morning discharge, but no gonococci seen since four days before second test.

Tests: 1st 6 weeks after onset + ± −
2nd 9 „ „ „ + + +
3rd 13 „ „ „ + + ±

(2910) First attack; uncomplicated; now fit for discharge.

Tests: 1st 15 weeks after onset ± − −
2nd 18½ ,, ,, ,, − − −

Group IV. Negatives.—341 cases were negative on the first test. These were for the most part cases of syphilis or suspected syphilis, whose sera were sent primarily for the Wassermann test; but 89 of them were cases diagnosed as gonorrhœa and 6 more gave a history of gonorrhœa within three years. These, of course, may have been completely cured, and we think it is probable that several of the others were free from gonococcal infection at the time the test was made. These figures as they stand show 26·1 per cent. to be actually positive, a result which at first sight seems damaging to the value of the test in diagnosis. But again it must be pointed out that these are the results of first tests only. If subsequent tests on the same patients were taken into account the percentage of actual gonorrhœa cases falling in this group would be much lower.

Of the above 89 cases, 31 have been repeated once or more, and of these all but 6 showed a rise on the second test, 7 became strong positives, 9 moderate positives, and 9 weak positives; while on a third test some of the last became positives. If this proportion were maintained throughout the 89 cases the percentage which on second test remained negative would be 5 instead of 26·1. On the other hand, 17 cases showing no signs and giving no history of gonorrhœa were repeated, and only 1 showed on second test anything but a negative; this one became a doubtful, and was probably an experimental error. Of the 6 cases alluded to, which remained negative on second test, 2 are cases of doubtful diagnosis, and 3 others are probably cured cases whose antibody has disappeared; the sixth is still under treatment and will be further tested. We add details of the five doubtful or cured cases.

(2068) This man was admitted to hospital overseas as a case of gonorrhœa, and sent on here a month later. He has syphilis, but it is doubtful if he has ever had gonorrhœa. Gonococci have never been found, despite most careful search over a period of four months. Neither detoxicated vaccine, silver nitrate, nor instrumentation have provoked the appearance of the organism, and his prostate has always been normal. He has given a dead negative fixation result on four successive occasions. He still, however, has a slight morning discharge, which we are inclined to think is due to simple urethritis kept up by energetic treatment.

(2698) This man has no clinical signs of gonorrhœa, but gives a history of an attack two years ago. His serum was sent for a Wassermann test, and has twice given a dead negative gonococcus fixation result.

(2728) This man was in hospital overseas for 2½ months before admission here. He reported sick in the first place with a double epididymitis, but stated that he at no time saw any discharge. No gonococci were found either overseas or here. His epididymitis cleared up shortly after admission. He gave a negative result on three successive occasions.

(2862) Another case sent on from a hospital overseas, in whom no clinical signs were found and who twice gave a negative.

(3094) This man gives a history of exposure to infection in December, 1918, and shortly after developed vague perineal pains. Despite the fact that he had no discharge he was firmly convinced that he had contracted gonorrhœa. He reported sick many times, but as he had no clinical signs he was not treated. He is a very neurotic individual, and after many months determined efforts to be admitted to hospital he managed to produce a discharge. He was admitted here three months ago, and since then exhaustive examinations have failed to find the gonococcus. He still complains of pains in the cord and testicle at times. We are of opinion that this man has never suffered from gonorrhœa but from gonorrhophobia. He has three times given a negative fixation result.

The following are illustrative cases in this group:—

(2737) First attack; uncomplicated; has syphilis also; improving, but still pus: no gonococci seen for 4 weeks.

Tests: 1st 4 weeks after onset − − −
2nd 8½ ,, ,, ,, +++
3rd 12½ ,, ,, ,, +++

(2746) First attack: uncomplicated; no gonococci seen since date of 1st test, but pus till 1 week before last test; discharged 3 days after last test.

Tests: 1st 8 weeks after onset + − −
2nd 10 ,, ,, ,, ++±
3rd 13 ,, ,, ,, +++

(2866) First attack: epididymitis; improving slowly; epididymis still hard and swollen; still morning discharge, but no gonococci seen since 1 week before last test; still under treatment.

Tests: 1st 6 weeks after onset + − −
2nd 7½ ,, ,, ,, +±±
3rd 11 ,, ,, ,, +±±

(2942) First attack; epididymitis and peri-urethral abscess; gonococci present till one week after second test; general condition poor; improving slowly.

Tests: 1st 6½ weeks after onset − − −
2nd 8½ ,, ,, ,, ++±
3rd 12½ ,, ,, ,, +++

(2957) First attack; epididymitis; treated privately for a fortnight before admission; no gonococci seen here; improved rapidly and was discharged 12 days after last test.

Tests: 1st 8 weeks after onset − − −
2nd 11 ,, ,, ,, ++±

Summary and Conclusions.

840 tests have been made on 625 cases sent from both gonorrhœa and syphilis wards.

Of 53 strong positives	90·4%	Agreed clinically or in history.
66 moderate positives	86·3%	
75 weak positives	72·0%	
90 doubtfuls	58·9%	
341 negatives	26·1%	

26·1 per cent. of the negatives were cases of gonorrhœa or gave a history of gonorrhœa. Many of these cases, however, we have reason to believe to be free from gonococcal infection, and those with an undoubted infection showed a rising reaction (usually a positive) on second test in a fortnight. Only one case of known gonorrhœa remained negative on second test.

In diagnosis a positive result is strongly indicative of active gonococcal infection. A single negative is of no value, but a second negative in two to three weeks is strong presumptive evidence of absence of infection. Cases doing well show a positive reaction by the ninth or tenth week, which soon begins to fall, such fall coinciding with clinical improvement. Cases in which a strong positive reaction is maintained over several weeks still have an active focus.

The administration of detoxicated vaccine in doses of 1000 millions or more produces an artificial power of fixing complement, which, however, does not necessarily mean any improvement in the patient's condition. In such cases the complement-fixation test is of no value.

The complement-fixation test should prove of the greatest value in the diagnosis of obscure pelvic diseases in women, so often the result of gonorrhœa.

We desire to thank Lieutenant-Colonel M. P. Corkery, O.B.E., the Commanding Officer of this hospital, for facilities in connexion with this work; also the other medical officers, for their coöperation in examining cases and making inquiries into histories. We further wish to thank the staffs of the treatment rooms and laboratory, and especially Sergeant E. G. Penney, R.A.M.C., for his zeal and care in laboratory preparations, and for many other services in connexion with this inquiry.

Military Hospital, Chiseldon, Sept. 6th, 1919.

THE LATE DR. R. W. NESFIELD.—By the death from septicæmia, at the early age of 52, of Richard Webster Nesfield, M.B., Ch.B. Vict., L.S.A. Lond., Manchester has lost one of its best known and most esteemed practitioners. Himself the son of Dr. Stephen Nesfield, a Manchester physician of no small repute, "Dicky" Nesfield was an old Rossalian, and later a very well-known student of the Manchester School of Medicine. After taking the L.S.A., he obtained the Victoria degree in 1893. For some time he then held the senior resident post at the old St. Mary's Hospital. After a period of practice at Shelley, near Huddersfield, he settled down at the old family practice in Old Trafford with his brother as partner, about ten years ago. When the war came and his brother was mobilised he was called upon to do two men's work, and the strain had not been relaxed since. This year, however, he managed to get a good holiday, but the long work had told and the war was to take its deferred toll of him. He died at his home in Richmond Place, Old Trafford, and was buried on Nov. 11th at the Stretford Cemetery, Canon Richardson and other clergy officiating. The crowds who were present then, and also at the memorial service at St. Bride's Church, afforded some evidence of the great regard felt for Dr. Nesfield in the district.

THE LATE COMPLICATIONS OF GUNSHOT WOUNDS OF THE CHEST.

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THE study of gunshot wounds and injuries of the chest during the war was a subject full of interest for the surgeon as well as for the physician. The physicians were introduced to physical signs which had frequently nothing in common with those of chest diseases peculiar to civil life; and surgeons likewise were confronted with pulmonary lesions due to the presence of foreign bodies, and had often to attack the lung substance itself, a procedure of the greatest rarity in pre-war surgery.

During the fighting the acute stages of chest wounds were seen in the hospitals in France. There it was possible to correlate the nature of the injury, its date of onset, and its immediate results with the early complications. Once the patient left the base hospitals in France, however, there was only one ready method available of ascertaining the after-history of the case; that was by sending one of the forms supplied by the Medical Research Committee with the patient to the United Kingdom. In some cases the medical officers at home were kind enough to send back notes on the case when the patient was ultimately discharged from hospital; in other cases no information was forthcoming. In a few instances the data concerning the further course of the case, and the physical signs in the chest at the time of discharge, were rendered fully and with considerable care, but in the majority of cases the date of discharge and a cursory note as to whether the patient was "fit" or "debilitated" were the only records returned.

It became obvious, therefore, that a more elaborate system of investigation had to be undertaken. The one which commended itself to me was to send on the Medical Research Committee form in the usual way, but, in addition, to take a special note of the name and address of the patient's next-of-kin prior to his evacuation to the United Kingdom. At intervals after the man's discharge from hospital at home a form was sent to the next-of-kin, with a request that it should be filled in and returned to me. It is extraordinary how faithfully the replies to this request were given. Whether it was the stamped addressed envelope enclosed, which told that there was no personal expense attached to the venture, or whether it was an earnest desire to furnish details which might further the cause of clinical science, I know not, but it was certainly surprising to find that over 90 per cent. of the cases have been followed up at four to six monthly intervals by this simple method. In some cases the symptoms complained of were grossly exaggerated, but, on the whole, the answers to the questions asked were given concisely and well.

The circular sent took the following form:—

1. What is your (son) doing now?
2. Was he discharged from the army on account of his wounds? If so, when?
3. How far can he walk without exhaustion?
4. Has he any pain, cough, or spit?
5. Does he complain of anything else?
6. You may add any notes you may think of interest.

Of course, many cases were investigated more fully by further private correspondence, and I should not be in a position to place the following facts on record were it not for the very great help I have obtained from many doctors at home who have, often at the patient's own request, furnished me with details of physical signs and other points in the history of the cases.

In this way, therefore, one has been able to compile a complete record of 139 cases from the time of injury, and to trace the clinical history of each case through field ambulance, casualty clearing station, base hospital in France, hospital and convalescent home in England, and, finally, to add notes on the subsequent history as it affected the original disability.

My own observations on the clinical condition were made at two base hospitals in France over a period of nearly two years, whilst acting as physician-in-charge of cases of gunshot wounds of the chest. Since November, 1918, however, a special effort has been made to investigate every case presenting evidence of an old chest wound. These latter cases are not included in the statistics in this article, for complete clinical notes have not been available. Nevertheless, they have been of interest inasmuch as they have taught one to appreciate the fact that many of the so-called subjective symptoms are, in reality, due to, or can be explained by, gross organic disease in the lung, pleura, or chest wall.

CLASS I.—*Cases returned to duty in the army in less than three months from the time of injury.*

This is the condition of affairs which borders on the ideal. Under this heading are included not only cases which were returned to duty within the time stated, but also cases which remained at duty free from disablement attributable to the original wound. The group includes 40, or 28·7 per cent., of the total number of cases investigated, which is admittedly a small percentage. The original lesions in these cases varied, as shown below:—

Collapse or contralateral collapse only	3
Hæmothorax (sterile)	24
Foreign body in lung or pleura	13

Only 21 of these have, at the time of writing, reported themselves perfectly well and able to carry out their duties without complaint of any kind, and of these 3 had collapse or contralateral collapse, 10 had hæmothorax, and 5 had foreign bodies in lung or pleura. Since November, 1918, it has been my privilege to examine a number of men who had sustained thoracic injuries during the war. Some of these had reported sick and were admitted to hospital on account of subjective symptoms, due, presumably, to the old chest wound. Other cases were discovered in the wards suffering from some other condition—e.g., skin diseases. It is, of course, always difficult to be sure what the original lesion has been, but it may be presumed that an effusion into the pleura has occurred in about 60 to 70 per cent. of the cases.

The symptoms are variable in this class. Denechau[1] reports 42 cases with no objective signs, but who complained of subjective symptoms. Some complain of shortness of breath on exertion, especially when marching with full kit and rifle. There is invariably an area of increased sensitiveness to pressure in the neighbourhood of the wound, even when it is no larger than a threepenny piece; sometimes this hyperæsthesia is the only symptom of which he complains. Cough is rarely troublesome. The physical signs vary from being negative to those indicative of restricted movement over a limited area of the lower lobe of the affected side. Two cases presented wounds of entrance and exit in the right chest above the level of the fourth rib, and had obviously had penetrating wounds of the chest, yet the movement of the upper lobes was good, and except for a relatively poor air entry at the base of the right lung there was no abnormality in the chest. Præcordial pain is rare.

CLASS II.—*Cases returned to duty in the army after a period of three months from the time of injury.*

The opportunity to see these men in France seldom presents itself, for the original lesion has usually been so severe as to incapacitate for further active service abroad. Many, however, are able to carry on work in a more or less sedentary occupation at home, such as batman, clerk, groom, messenger, &c.

In my series there are 41 cases in this class, or 29·4 per cent. The original lesions varied, as shown below:—

Collapse or contralateral collapse alone	1
Hæmothorax (sterile)	25
Hæmothorax (infected) rib resected	2
Foreign body in lung or pleura...	13

At the present time (October, 1919) 18 have no subjective symptoms, and these include the case which had collapse, 11 which had sterile hæmothorax, 1 which had infected hæmothorax, and 5 which had foreign bodies in the lung or pleura.

Amongst the subjective symptoms is pain in the chest in the neighbourhood of the original wound, usually near the wound of exit if such be present. Occasionally it is situated in the lower thoracic zone in the region of the diaphragmatic attachment. It is aggravated by exercise of any kind. The difficulty encountered in lifting heavy objects is usually in proportion to the amount of damage to the thoracic musculature, and in cases where the scapula or clavicle have been fractured this particular form of disablement may be very great indeed. It is noticed, too, that injury in the

region of the pectorals, rhomboids, or latissimi is accompanied by far greater inconvenience than a correspondingly severe lesion involving a portion of the chest uncovered by these muscles.

The pain is sometimes superficial, sometimes deep, but not sufficient to incapacitate completely. It is often influenced by changes in the weather. Præcordial pain is complained of in 9·6 per cent. of these cases. It is present most frequently in the cases which have had long periods of suppuration in the muscles or in the pleural cavity, and like the pain in other parts of the chest is more severe on exertion. Palpitation is a symptom in about 4·8 per cent. of these cases in Class II. Cough is more frequent than in Class I. It is dependent upon the amount of former pulmonary or pleural damage. The expectoration is greatest in amount in the mornings, but in some cases it appears to be almost continuous, especially in the cases recovered from empyema. The physical signs are, as a rule, more obvious in this class, a fact which is in keeping with the previous histories of the cases. The greater liability to cough and spit is reflected in the greater prevalence of bronchitis, but the pulmonary signs are much the same as those found in a large proportion of cases in Class I., being, however, much more frequently found in this group.

CLASS III.—*Cases discharged from the army on account of wounds.*

It was difficult to imagine during the war that free excision of a portion of a rib with drainage in any form in cases of infected hæmothorax was going to be compatible with the future life of a soldier. The actual amount of operative interference was, it is true, very slight, and in many cases the operation itself was performed under conditions of anæsthesia which left no doubt that the most which could be done was being done under the best possible conditions. The end-results were, however, received with scepticism, and it only required reliable figures to show that the means at our disposal for the treatment of severe wounds of the chest, complicated by infected hæmothorax, were far from satisfactory. Large wounds of the chest wall were excised, ribs excised, pleura excised, and lung tissue excised to limit the spread of infection and to save the patient's life. And the surgeons reported recoveries! Certain it is that life was saved in hundreds of cases, but it may be asked legitimately if all due respect was at all times paid to the mechanisms and physics of the chest. In Class III. we find a motley group of men who are, or should be, pensioners.

It is most important to analyse this group carefully, for the following reasons. Firstly, they represent our failures to deal successfully with acute pleural infection; secondly, they are not now all suffering from sepsis, but most of them from the result of sepsis; thirdly, they demonstrate how important it is to preserve as far as possible the integrity of the chest; for once the sepsis has been fought successfully there remains much to be done from a medical standpoint, and this can only be accomplished if the respiratory mechanism can respond.

In this class there are 46 cases; the original lesions were as follows:—

Collapse or contralateral collapse	2*
Hæmothorax (sterile)	13
,, (infected), rib not resected ...	1
,, ,, rib resected	14
Foreign body in lung or pleura	16

* Complicated by other injuries.

Symptoms.—The general condition now is one varying from invalidism to semi-invalidism. Only 7 cases are now able to return to full duty in civil life. Men who previously were miners are now lift-porters or in charge of buildings, &c. Some are able to take a fair amount of exercise, especially walking exercise, but this is not great as a rule, and varies from one-half to two miles. The prevalence of subjective symptoms in all classes of chest wounds has been commented upon by Denéchau.[1] His observations were made in July, 1916, on men who had been wounded in the interval between November, 1914, and April, 1915. Pain is common to all cases in this group. It varies in site and intensity, but is most common over the lower chest on the affected side. As in Classes I. and II., there are times when the pain appears to be dependent on meteorological conditions, but in the great majority of cases where there has been intrapleural suppuration it is continuous, with exacerbations due to coughing or exertion. The effects of muscular movement are very marked, and the inability to move the muscles of the shoulder girdle with freedom depends on the amount of destruction in the muscles forming it. Five cases are complicated by fracture of the clavicle, scapula, or both. The pain is sometimes intense in the neighbourhood of the wound, so much so that the patient cannot lie on that side. Præcordial pain is common, especially on coughing or on voluntary exertion. It is rarely acute; more frequently dull and aching. Cough is complained of in 76 per cent. of the cases. It is more or less continuous, and not apparently alleviated by medicinal treatment in most cases. In about one-third of the cases it is unproductive of sputum and is rarely the only symptom. Cough is most frequently a symptom when there is a foreign body in the lung.

Dyspnœa.—Every single case complains of shortness of breath on exertion. In a few cases it is said that if it were not for the shortness of breath "he would be able to earn a good wage." Walking upstairs, or up an incline, is a feat of considerable merit, but walking against the wind usually ends in failure. A few cases are improving in this respect, however, and have discovered that by careful and systematic training much can be accomplished. A consideration of the degree of destruction of normal tissue in the chest, together with the prevalence of adhesions in the pleural cavity, makes it clear why dyspnœa should be so prominent in these cases. In some it may be cardiac in origin. Two cases showed signs of myocarditis and cardiac dilatation, whilst under my care in France, secondary to septic hæmothorax; it would be difficult to say whether complete restoration of cardiac function has taken place by this time.

Gastric symptoms.—These are relatively rare and are found in only 6·5 per cent. of the cases in this class. Loss of appetite is the chief complaint, but sickness and vomiting have been present as long as eight months after the time of injury to the chest. One can readily understand the pathology of gastric disturbance in cases where the diaphragm has been torn, and where a communication has existed between the pleural cavity and the peritoneum, but in most cases with symptoms referable to the stomach the diaphragm was not directly wounded. Nor does it appear feasible to suggest a direct spread of inflammation from the pleural cavity, for in the acutest cases with a large hæmothorax infected with streptococci, the stomach symptoms are not so common as one might imagine, considering the anatomical contiguity which exists between the pleural cavity and the stomach. While the deposition of fibrin on the diaphragmatic pleura especially may be an important asset in limiting the spread of inflammation in the early stage of infection, the *continued* immobility of the diaphragm itself in left-sided lesions particularly may be responsible for some of the later manifestations of gastric derangement.

Neurasthenia and mental symptoms.—The incidence of neuroses is probably no greater in old wounds of the chest than in wounds of any other part of the body, but from the notes available it appears that insomnia is comparatively frequent. Night-starts and "horrible dreams" are enumerated in this symptomatology, but the circumstances of the original injury rather than the injury itself are almost certainly responsible for this disturbing element. Fortescue-Brickdale[2] has recorded a case of infected hæmothorax where the chest condition was satisfactory four months after the injury, but who had developed a "childish" mental condition with incontinence of urine.

Fever.—In the cases in which there has been definite evidence of a recurrence of fever there has almost always been some local lesion in the chest to account for it—e.g., empyema, fistula, bronchitis, &c. It is a common feature in cases with chronic suppuration, and in those where a foreign body has been retained in the lung substance.

Lesions of the chest wall.—Reference has already been made to the disabilities in Class II. resulting from extensive or selective destruction of the muscles forming the shoulder girdle. Much of the narrowing of the chest on the affected side is due to the loss of muscular tissue, and subsequent atrophy of muscles which act in conjunction with those already damaged. This muscular atrophy may lead to scoliosis. On auscultation a creaking sound suggestive of very coarse pleural friction may sometimes be heard in the neighbourhood of the wound, but that it is not of pleural origin may be proved by making the patient hold his breath and moving the muscles in the vicinity of the old wound.

One case, a German, showed this "fascial creak" over the right supraspinous fossa 16 months after a superficial wound in the same region involving the muscles *only*.

The actual damage done to the chest wall by the operation for rib resection is negligible so far as can be ascertained from the later reports. In a few cases one has seen retraction over the area in question during deep inspiration, and this is certainly more marked after the onset of a bronchopneumonia involving the lung on the affected side. Much restriction of movement of the chest is due to callus formation, which may be above or below the ends of the rib or ribs remaining after resection. X ray plates show this well. Severe neuralgic pains in the course of the intercostal nerves traversing the affected area may be due to involvement of the nerves in the callus. There may be also sharp spicules of bone springing from the internal aspect of the rib, pressing on the pleura and causing "pleural" pain or even pneumothorax (Sargent).

In contradistinction to these more or less purely destructive lesions of the chest wall there are the usual manifestations of atrophy of the muscles and contraction of the chest secondary to collapse of the lung and to adhesions in the pleural cavity. In the type of case under consideration this deformity may come on rapidly—so rapidly, in fact, as to suggest that trophic influences are at work in addition to the more mechanical ones. The compensatory expansion of the other side of the chest may throw the affected side into greater and greater relief by comparison, but in any given case cyrtometer tracings will give an exact mathematical picture of the existing degree of expansion and contraction respectively. A chronic discharging sinus in the chest wall has been noted in four cases. The focus of suppuration may be in the chest wall, in the pleural cavity, or in the lung itself. It is not possible to give exact figures to show the incidence of each, but in two cases operation was undertaken in England, and fragments of necrosed bone removed from the deep layers of the chest wall, where they had been enclosed in small pus cavities. Complete recovery is reported in each case. The usual position of the fistula or sinus is in the neighbourhood of the original wound, entrance or exit as the case may be, but in a small proportion of cases, pus comes to the surface at a point at, or near, the attachment of the diaphragm to the chest wall; these are cases of residual empyema and one case in my series has yielded to operative treatment.

Pleurisy.—It is probably correct to surmise that at least 70 per cent. of all cases of gunshot wounds of the chest have had an effusion of blood into the pleural cavity (vide ante). And, where there is blood, there is inflammatory reaction leading, in the sterile and mild cases, to the deposition of fibrin on the diaphragmatic, visceral, and parietal pleuræ, and in the infected and severe cases, to thick adhesions, with more or less collapse of lung, especially over the lower lobe. Proof of the frequency of pleural adhesions is found in the statistics of Robineau,[3] who, in 42 thoracotomies for removal of foreign bodies at a protracted date from the time of wounding, observed 33 cases with more or less firm union between the two pleural layers. A large number of men discharged from the army on account of chest wounds are those who have had infected hæmothorax treated by aspiration, rib resection, and subsequent drainage, and the late symptoms are, on the whole, fairly constant. Pain, cough, and dyspnœa are very common, whilst the physical signs show contraction of the affected side, most marked in the cases with previous history of long-standing infected hæmothorax, dullness on percussion over the greater part of the affected side of the chest, diminished vocal fremitus and resonance, absence or great diminution in the volume of air entry, occasionally cogwheel breathing, and more rarely crepitations.

In every case with suspected pleural adhesions a screen examination and an X ray plate of the chest should be made. The movement of the diaphragm on the affected side will be found to be absent, or limited to a half or less of the normal respiratory excursion. The regular contour may be obliterated, or adhesions stretching from the lung to the parietal pleura may be seen; and the normal costo-diaphragmatic sulcus may be, in fact usually is, obscured. The usual radioscopic signs of pulmonary collapse or deficient expansion may be noted.

Fresh attacks of acute pleurisy with effusion have not been detected in the clinical examination, or in the notes on the after-histories, nor have I seen a recurrence of hæmothorax. The occasional incidence, however, of pleural abscesses in the later stages of the disease shows that the possibility of intrapleural suppuration must always be considered in cases which are known to have had a septic hæmothorax at a previous date, and where the physical signs enumerated above are present, together with elevation of temperature and hyperæsthesia of the chest wall. Pieces of bone, fragments of metal, and decayed pieces of clothing have been found in the pleural cavity in different cases; a common place for them to be found is in the depths of the costo-diaphragmatic fold.

Sputum and hæmoptysis.—The sputum varies in quantity from a scanty expectoration in the morning to a continuous discharge during most of the day. 50 per cent. of the cases in this class complain of expectoration. Sometimes it is said to be greenish in colour and to take the form of pellets; at other times it is profuse, frothy, and constitutes the chief discomfort to the patient. Frequently it is purulent. Blood may appear in streaks or in clots mixed with a viscid mucus, and in such cases the degree of invalidism is usually marked. The patient carries with him the fear that he is developing consumption, and is not slow to ask advice on the matter. In Class III. hæmoptysis occurred in 10·8 per cent. of the total number of cases. The records show that hæmoptysis may be a late symptom in a variety of injuries and that it is not found only in cases with a retained foreign body. In two cases hæmoptysis has been present at intervals from the very first; in one case it did not appear until the third month of "convalescence."

It is to be clearly understood that by foreign body is meant metal or bone which was visible in the X ray examination. But in the cases with hæmoptysis, and where no foreign body was visible, it would be difficult to deny that a piece of clothing or a piece of necrosed bone or other foreign material is present. When one recollects that the smallest tuberculous lesion at an apex may result in a brisk and recurrent hæmoptysis, provided the necessary anatomical relations are fulfilled, it would not be hard to imagine that a small portion of foreign debris—e.g., a piece of fabric or a splinter of bone—might be responsible for many of the cases of late hæmoptysis, especially where the X ray examination failed to record positive evidence of an intrapulmonary lesion. In no case in this series has hæmoptysis been fatal, but in every case where it has been present the degree of disability has been well over 80 per cent. Usually, however, when a foreign body is present there are additional symptoms.

Asthma.—No single case of undoubted spasmodic asthma has occurred in my series, but others (e.g., Malespine)[4] have reported instances. Three patients have reported sudden attacks of difficulty in breathing occurring during the night, but there is no evidence to prove that these were true asthmatic seizures.

Emphysema.—Surgical emphysema is not found amongst the later complications of chest injuries. Compensatory emphysema is, however, a most frequent finding. It is observed in the lung on the opposite side from the original injury and in the neighbourhood of foreign bodies, and also in the upper lobe when the lower lobe of the same side is the seat of collapse, or is bound down by adhesions. It is a beneficial change, inasmuch as it is an attempt on the part of Nature to re-establish the normal respiratory mechanism. The physical signs may be very deceptive, as, for instance, in cases where the right side of the chest is much contracted from the result of an old empyema, and where the left lung has encroached beyond the sternum over the normal area of superficial cardiac dullness. In such cases the apex beat may be felt in the fourth interspace near the left sternal margin, and the right border of cardiac dullness may be outside the right nipple line. The displacement of the heart is due to collapse and adhesions on the right side, and not to any mechanical action on the part of the hypertrophied left lung. A good X ray plate will help one to interpret these signs, for the collapsed portion of lung shows up well by comparison with the emphysematous areas. The more efficient the compensatory emphysema the fewer are the subjective symptoms, and one of the objects of methodical respiratory gymnastics is to encourage the development of this condition.

Bronchitis.—The frequency of cough and spit is often, but not always, an indication of the amount and severity of existing bronchitis. Many old "chest" cases consider they must cough, until it is explained to them that there is

nothing to be gained by repeated expulsive efforts carried out in this fashion. But bronchitis, as an isolated complication, must be rare. It is more usually found in association with a chronic pneumonic condition to be described later, or in cases complicated by influenza. When pleuritic adhesions are present signs of widespread bronchitis are rare, and do not add greatly to the disability already present. It is not uncommon to find a few râles confined to the small tubes at the base of the lung on the side of the original lesion, when the lower lobe is beginning to expand. These tend to disappear, however, with the gradual restoration of the lung to its former dimensions. The notes from the hospitals in England have emphasised this point.

Tuberculosis of the Lungs in Relation to Chest Injuries.

The study of gunshot wounds of the chest is one which offers a good field for the investigation of the relationship between trauma and phthisis. I hope, however, to deal with this question more fully elsewhere. Meanwhile it may be said that my experience differs in no way from that of Sargent,[5] Malespine,[4] Soltan and Alexander,[6] and others, who have found that the number of cases developing evidences of tuberculosis after chest wounds is exceedingly small. Out of a total number of 1782 cases of old chest wounds collected from the literature, definite signs of tuberculosis supervened in 5—i.e., 0·28 per cent. It is to be remembered, however, that there is no symptom or sign in phthisis which may not be simulated by a foreign body in the lung if an examination of the sputum be neglected. The presence of tubercle bacilli in the sputum is the only definite proof that the lesion is tuberculous. The syndrome of "chronic pneumonia" due to the presence of a foreign body in the lung may cause the greatest difficulty, for pain, cough, hæmoptysis, fever, emaciation, purulent sputum, restricted chest movement, diminished or increased vocal fremitus, and all the auscultatory signs so characteristic of advanced tuberculosis may be simulated by a foreign body lodged in an upper lobe.

The correct diagnosis of these cases is important, for there are now several cases on record where complete removal of the metal has resulted in complete recovery, and where the general condition also improved in a manner which would never have been contemplated had the patient been suffering from a similar degree of tuberculous mischief.

Chronic pneumonia.—Chronic pneumonia is a condition which has to be differentiated from pulmonary sclerosis on the one hand, and from pulmonary tuberculosis on the other. Whilst pulmonary sclerosis is the result of a more or less successful attempt on the part of Nature to substitute harmless tissue for the harmful, chronic pneumonia is the outcome of irritation due to the presence of a foreign body in the lung tissue. In 139 cases of chest wounds, there was positive X-ray evidence that a foreign body was present in 33. Following the above classification, 10 were returned to duty in the army in less than three months, 9 after three months, and 14 were discharged from the army as unfit for further service.

The late histories of the cases reveal that a foreign body may be present without symptoms directly due to its presence in the lung in 20·2 per cent. of the cases. When symptoms are present, however, they are remarkably uniform. Pain is constant and is referred to the side of the chest involved. Sometimes the patient is unable to lie on the side affected, and yet complains that if he lies on the sound side his sleep is disturbed by coughing. Evidence is lacking to show that pain or any other symptom is less severe when the upper lobe is involved, and any beneficial effects of "natural drainage" have not been detected in upper lobe lesions. The sputum is, as a rule, profuse, and may be limited to the early morning hours. Frequently it is purulent, and hæmoptysis is complained of in 18 per cent. of the cases. Large quantities of blood are not expectorated; more often blood is seen in streaks at intervals. It is usually viscid, but may resemble prune juice. According to some French observers,[7] the sputum may show cells containing iron pigment, even when it is not discoloured. Organisms indicative of secondary infection may be present (staphylococci, streptococci, pneumococci, &c.). The albumin reaction is positive. Dyspnœa appears to be very great in all cases and is the symptom which is most commonly complained of. Night sweats may prove troublesome.

I have not been fortunate enough to see many of those cases clinically in this stage of the illness, but from the observations I have made, together with the notes supplied to me by several doctors at home and more especially by Dr. Malespine of Lyon, the physical signs show the same uniformity which characterises the subjective symptoms. The movement of the chest is restricted on the affected side from apex to base; vocal fremitus is increased, and the percussion note is dull over the area affected. Beyond the immediate neighbourhood of the foreign body the note becomes less dull until, at the opposite extreme of the lung (apex or base), the note is merely impaired. The cardiac boundaries are within normal limits, unless there are also signs of complete collapse of the lower lobe and pleural adhesions on the same side as the foreign body, in which case there may be displacement of the heart to that side, with a corresponding alteration in the physical signs over the lower lobe (see above). Depending on the size and the anatomical situation of the foreign body, and also on the relative acuteness of the disease, the signs on auscultation vary, particularly in the presence or absence of adventitious sounds. In the more chronic localised cases the breath sound is tubular, with marked prolongation of expiration and whispering pectoriloquy may be heard, always most pronounced in the immediate neighbourhood of the enclosed foreign body. Friction may be heard. Adventitious sounds may be absent, but moist sounds of intrapulmonary origin, associated with the sibilant rhonchi over a diffuse area, are common in the acute cases. The "sound" side may give signs of bronchitis involving the larger tubes.

The physical signs of cavity formation may be present, but there has been no such case in my series. Elliott and Henry[3] have, however, noted the occasional presence of a lung cavity in post-mortem work. "It is lined with a definite pyogenic membrane, and may be traversed by unsupported pulmonary vessels running across it just as in a tuberculous cavity." Many of the patients are able to be up and about unless the degree of emaciation and weakness precludes this. Eight patients are quite unable to follow employment of any kind. There are no records available as to the course of the temperature in these cases. Four cases have been operated on so far in my series, and of these three are now able to follow employment of some kind or other. The similarity of this disease to phthisis, and some points in the differential diagnosis, have already been noted.

Bronchiectasis.—No case of bronchiectasis has come to my notice so far, but the pathology of pulmonary sclerosis following a retained innocent foreign body in the lung is to be remembered in this connexion.

Influenza.—Two cases, or 4·3 per cent. of the cases in Class III., give histories of having had an attack of influenza subsequent to the injury. This is to be compared with those similarly affected in Classes I. and II., 2·5 per cent. and 2·4 per cent. respectively. Death resulted in two cases—all in Class II. The course of the disease differed in no way from the usual type seen in men free from wounds, but in two cases at least it was responsible for a much protracted illness. The figures quoted would suggest that influenza is a more dangerous and frequent complication in those who have perforated wounds of the chest, with collapse of the lung due to effusion of blood into the pleura, than in those who had, at the time of injury, signs of collapse or contralateral collapse without penetrating wounds of the chest. The nature of the chest injury in the cases which died of broncho-pneumonia following influenza is indicated in the table below:—

Date of wound.	Nature of chest injury.	Date of death.
27/8/17	Bullet wound of right chest; penetrating; hæmothorax.	27/10/18
12/9/17	Penetrating wound of chest. Infected hæmothorax. Rib resection. Recovery.	7/11/18

Soltan and Alexander[4] have described a case of septic broncho-pneumonia as a late complication following general anæsthesia for the removal of a foreign body which had traversed the lung and had become localised in the abdomen. It was assumed that the patient had aspirated septic material from his left lung into his right during the deep respiratory movements coincident with the induction of anæsthesia. An empyema followed.

Abscess and gangrene of the lung.—How many of the cases with foreign bodies in the lung ultimately develop an abscess or gangrenous condition cannot be stated. It is not possible to say anything of the incidence of these two conditions from the notes at my disposal. Clinically, they are seen very rarely. It is much more common for a foreign body to give rise to symptoms of "chronic pneumonia," described above,

than to the classical picture of pulmonary abscess. Denéchau [1] has seen two cases of lung abscess bursting through the chest wall 16 months after the date of injury. Sir W. Hale White [9] has also laid stress on the rarity of abscess and gangrene of the lung.

Pneumothorax, as a late complication of chest injuries, did not occur once in my series. Cases have, however, been reported in the later months, due, it is said, to penetration of the pleura by a spicule of bone growing from the inner aspect of a fractured rib (Sargent).[10]

Rare complications.—Little need be said about the lesions in the heart or blood-vessels resulting from old gunshot wounds of the chest. They are not late complications, but are, strictly speaking, the late manifestation of early complications. A case of pericarditis has been recorded by Rose Bradford, who says that grazing wounds of the heart are probably the cause of pericardial friction. Cardiac arrhythmia, or continual tachycardia, with dyspnœa on the slightest exertion, is a syndrome elaborated by Emile Sargent.[11] The physical examination of the chest may be negative, or a foreign body may be seen on screen examination in the neighbourhood of the large vessels at the base of the heart, or in the region of the cardiac plexus or phrenic nerve.

Dr. Loch returns me notes of a case which developed exophthalmic goitre in the fourth month of illness; it is of interest to read of similar cases from the clinique of Sargent, who attributes the condition to sympathetic irritation. Pseudo-ptosis and contraction of the pupil, but with no vaso-motor phenomena, have supervened in one case which was under my care in September, 1917. There is no condition analogous to the "spes phthisicæ" in the chronic invalidism associated with gunshot wounds of the chest. In fact, many of the cases show definite evidences of neurosis, as has been pointed out previously. In the letters from some of the patients the personal concern, especially in cases of hæmoptysis due to a foreign body which the patient knows is in his chest, is very pronounced, and may be an important factor in bringing about much of the general weakness and debility.

One case of hemiplegia has been recorded by Phocas,[12] and convulsive attacks are a feature of one case of my series. I can obtain no further information as to the exact nature of these "fits." Piery [13] has reported one case where death occurred in a fit, and yet another case is quoted by Leriche.[14]

Summary.

The following summary is based on the study of the correlation between the early clinical symptoms and signs and the late complications of chest wounds.

Wounds of the chest wall.—Wounds involving the muscles of the shoulder-girdle give rise to much disability in the free movements of the arms. Fracture of the scapula is specially associated with impairment of function. If there is no intrapulmonary or intrapleural damage at the time of injury the men return to duty in the army in one to three months and are fit for service abroad.

Collapse and contralateral collapse.—This was found in 25 cases in the entire series. In 9 cases collapse occurred without perforation of the chest. Contralateral collapse, partial or total, was found in 10 cases. There is no evidence to prove that collapse, *per se*, is responsible for any of the after-effects of gunshot wounds of the chest, and in a study of the influenza cases infection is not found specially in cases which showed this phenomenon. The notes from the home hospitals show that in every case where the condition had been suspected in France no physical signs were present over the lung in question at the time of discharge from hospital in England. It is well known that even in the "acute" stages of collapse or contralateral collapse, localised or massive, there may be no symptoms beyond slight dyspnœa and cough.

Hæmothorax (sterile).—Seventy-three cases come under this heading. If the effusion has been small there may be no physical signs in the chest three months after injury. When the effusion is large, however, there may be evidences on the objective side of limitation of movement of the lung on the same side and, on the subjective side, of dyspnœa on exertion and dull aching pain, probably due to fibrinous adhesions at the lower margin of the lung. Every case was able to return to duty in the army in two or three months, but 37 cases which had large effusions aspirated were only fit for light duty at home after an illness lasting three to five months.

Hæmothorax (infected); rib not resected.—Five cases showed signs of infection—e.g., 1 with encapsulated diplococci, 1 with a coliform organism, 2 with staphylococci, and 1 with a Gram-positive streptococcus. In none of these was rib resection performed, the guiding principle being that the general condition, plus the physical signs, were of more value in coming to a decision in favour of operative interference than absolute reliance on the temperature chart and bacteriological examination. In one case was operation (including aspiration) necessary in England. One was returned to duty in the army within three months; two returned to duty in the army after three months, and one was discharged from the army as permanently unfit for further service.

Fortescue-Brickdale's [2] results show that aspiration of nine specially selected cases infected with staphylococci, streptococci, Gram-negative diplococci, coliform organisms, and anaerobes resulted in return to duty within a period of four months from the time of wounding.

Hæmothorax (infected); rib resected.—The total number of cases in my series is 17. These may be subdivided into those which had a foreign body (visible to X ray examination) in the chest, and those with no foreign body. The final results are tabulated below.

Foreign body present in lung or pleura	4 cases.
No foreign body	13 ,,

Cases with no foreign body in lung or pleura (13).

Number fit for duty within 3 months	0
,, ,, ,, 6 ,, ...	2
,, discharged from army	11

Of those discharged from army:

Number unable to work, still in hospital (October, 1919)...	3
,, able to do light duties	2
,, fit and well	2
Deaths	4

Cases with foreign body in lung or pleura (retained) (4).

Number fit for duty within 3 months	0
,, ,, ,, 6 ,, ...	0
,, discharged from army	3

Of those discharged from army:

Number able to work, still in hospital (October, 1919) ...	2
,, able to do light duties	0
,, fit and well	1
Deaths	1

The disability in old cases of infected hæmothorax is almost always the result of pleural adhesions. The large number of cases so affected makes it imperative that something should be done to help them, and Sir Berkeley Moynihan [15] has already found that the breaking down of adhesions in cases where a foreign body is retained in the lung results in great relief. It would be well to emphasise this point in the light of statistical results relating to morbidity.

The figures given above may be compared with Colonel T. R. Elliott's,[16] which show that cases of septic hæmothorax who survived, "thanks to early detection and adequate drainage," were under hospital treatment for more than twice as long as the sterile hæmothorax cases, and one-third of them were ultimately invalided out of the service.

There is a small number of cases who had evidences of a foreign body in the lung and yet who had no physical signs of infected hæmothorax or septic pneumonia. The total number is 26. Of these, 9 are well and able to go on with army work after an illness of three months; 7 are capable of doing light duties in civil life; 10 are discharged from the army as permanently unfit.

Deaths.—It may be of interest to give a summary of the deaths which have been recorded since the investigation was begun:—

Name.	Date of wound.	Nature of original lesion.	Cause and date of death.
Gnr. S.	30/7/17	Non-penetrating wound of chest. Right-sided hæmothorax. Aspirated.	Cirrhosis of liver, 24/11/18.
Pte. McP.	22/8/17	Penetrating wound of chest. Fracture of scapula. Small hæmothorax.	Killed on 5/5/18.
Cpl. G.	27/8/17	Penetrating wound of chest. Sterile hæmothorax.	Influenzal broncho-pneumonia, 27/10/18
L.-Cpl. B.	12/9/17	Penetrating wound of chest. Infected hæmothorax. Rib excised. Recovery.	Ditto, 7/11/18.

(Continued at foot of next page.)

A MODIFIED OPERATION FOR SCROTAL VARICOCELE,

TOGETHER WITH A LOCAL ANÆSTHETIC TECHNIQUE.

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IN discussing the operation for varicocele the text-books of surgery for the most part content themselves with a description of the common procedure—a resection of veins and a tying together of their ligatured ends. The literature of the subject, however, presents an extraordinary number of variations from this usual technique. During the last three years I have had under my care a long series of varicocele cases. My only excuse for adding to an already large literature is that I have been able to obtain more satisfactory results by the method about to be described than by any other.

Nearly all the operations that have been devised involve a twofold procedure: first, a removal of most of the varicosed veins; and secondly, a correction of the testicular ptosis by some form of suspension or support. Of these two steps there is no doubt that the second is the more important. One has only to consider how perfectly the symptoms (other than psychic) of varicocele are relieved by a properly fitted suspensory in order to realise the efficacy of support alone. The "conservative" operation of Del Valle omits vein-resection altogether. My view is that the removal of veins is never necessary for the relief of physical symptoms provided the testicle be adequately suspended. With large varicoceles it may be advisable for cosmetic reasons, particularly if psychic symptoms are prominent, or if the patient wishes to pass into one of the public services. Even in such cases correction of the orchidoptosis alone will bring about a considerable diminution in the size of the varicocele. If one depends primarily upon the resection of veins to effect a cure, then one must steer a narrow and difficult course between the Scylla of removing too little, and the Charybdis of taking away too much. In the first case relief will be incomplete or temporary only, while in the second circulatory disturbances in the testicle, of greater or less severity, inevitably follow.

Methods of Suspending the Testicle.

Numerous methods of suspending and supporting the testicle have been described. They may be grouped under five headings: (1) Suspension by resecting or otherwise shortening the pampiniform plexus. Some of these techniques exhibit considerable ingenuity. For example, Del Valle's operation (already referred to) causes the veins to pass over a bridge of tissue formed from the external oblique aponeurosis. (2) Suspension by raising a flap of tunica vaginalis and suturing it to the external inguinal ring (Parona's operation). (3) Suspension by raising a flap of external oblique aponeurosis and suturing it to the gubernaculum testis (Frank's operation). (4) Support by partial resection of the scrotum. (5) Suspension by shortening the cremaster.

(*Continued from preceding page.*)

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It appears to me that in most cases valid objections attach to all except the last of these methods. The natural support of the testicle is not the scrotum, or the venous plexus of the cord, or any other structure except the tube of cremasteric muscle and fascia. As a general rule, natural means are preferable to artificial, provided that we can accomplish our purpose by them. Moreover, methods (2), (3), and (4) are unnecessarily elaborate for the ordinary case, while the first method is likely to be inefficient. Veins, and especially varicosed veins, are almost the last structures that one should select to bear strain and tension.

The general idea of shortening the cremaster for varicocele is by no means new. Mori described such a method in 1907 and Carta in the year following. Mr. Philip Turner[1] gives his technique, which consists in making a longitudinal incision through cremaster to gain access to the veins, and then, after vein-resection, sewing it up transversely. This method does admirably for cases where the testicular ptosis is slight, but in more severe cases does not give sufficient shortening.

It sometimes happens with large varicoceles of long standing that the cremaster is thinned and its muscular elements are atrophied. In such patients I believe that Parona's operation gives the best results. In the majority of cases, however, a muscular cremaster is found which is quite capable, after being shortened, of fulfilling its proper function.

The Author's Operation.

The operation which I ordinarily use is done as follows: An incision about 1½ inches long is made over the cord just below the external inguinal ring, and is deepened until the external spermatic (intercolumnar) fascia is seen. This is picked up with two pairs of dissecting forceps and nicked between them. It readily lifts up from the underlying cremaster, but there is no advantage in separating the two layers further. The cremaster is next picked up and nicked in a similar manner. The cut edge of the external spermatic fascia and that of the cremaster are now clipped together with a Spencer Wells forceps on each side of the nick, and the incision in these structures is extended longitudinally up and down for an inch or more each way. A little traction by an assistant on the Spencer Wells forceps will enable one easily to slit the cremaster for three inches through a skin incision of half that length. The assistant should now spread the slit open by using the forceps as retractors, while the surgeon, with his finger or a blunt dissector, gently separates the cremasteric tube all around and for a length of at least two inches from the elements of the cord in their investment of internal spermatic (infundibuliform) fascia. This separation is very easily effected except at the back, where a little force or a touch of the scalpel may be necessary. If it is thought desirable to resect veins, it may be done at this stage. I rarely do more than to remove the three or four worst, tying each vein separately with the finest catgut, and making no attempt to bring the ligated ends together. The next step is the shortening of the cremaster. This is accomplished by eight interrupted sutures of fine catgut, introduced longitudinally into the muscle, so that when they are tied the cremaster is puckered. Each suture picks up the muscle at three or more points; the distance between the highest and the lowest of these represents the amount of shortening that is obtained after tying. One should aim to bring the top of the testicle to the level of the root of the penis. The four sutures in the posterior half of the cremasteric tube are introduced from within, the cord being retracted first to one side and then to the other. They should pick up only the muscle, and should lie exactly in the direction of the long axis of the tube (Fig. 1). Unless these precautions are observed, there is some danger of including the genital branch of the genito-crural nerve. If the cremasteric innervation is destroyed, the whole purpose of the operation is defeated. Before these posterior stitches are tied, the edges of the incision in the tube are approximated by the Spencer Wells forceps, and the four anterior sutures are introduced from without, including intercolumnar fascia as well as cremaster (Fig. 2). The incision is now spread open again and the posterior sutures are tied. Next, one removes the forceps and ties the anterior stitches. An additional external stitch may be inserted directly over

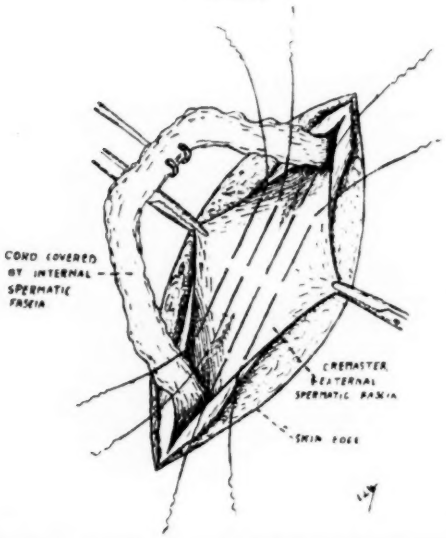
[1] THE LANCET, 1917, i., 759.

the cremasteric incision. A little care in infolding the puckered area will enable one to avoid a "bunchy" appearance and to leave a smooth surface (Fig. 3). Suture of the skin in the ordinary way completes the operation.

Advantages of the Operation.

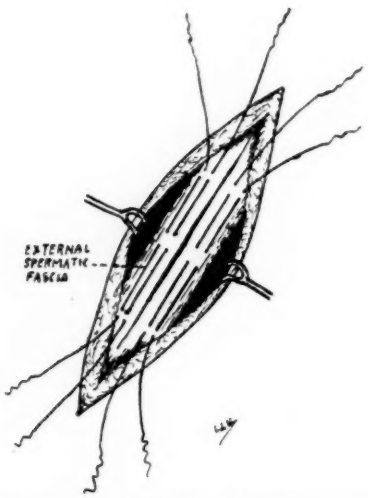
The advantages claimed for this operation are the following: 1. It can be as easily and quickly done as the common operation for varicocele. 2. It is based on a sound

FIG. 1.



anatomical principle. 3. It gives adequate and permanent suspension to the testicle, which is essential to a radical cure of the condition. I have had the opportunity of examining some of my patients after several months of active military service subsequent to the operation. In no case had any degree of the old ptosis returned, and all were free from symptoms. 4. There is little or none of that

FIG. 2.



plastic inflammatory thickening at the point of operation which so commonly occurs in cases done by the old method. 5. The mobility of the testicle is not restricted by the formation of adhesions at this point. 6. The operation is not followed by congestion of the testicle or any other form of circulatory disturbance. Convalescence is rapid; the patient gets up in a week, and permanently discards his suspensory in a fortnight.

Preliminary Hypodermic Medication.

The radical cure of varicocele can be done very satisfactorily under novocaine anæsthesia. It is my custom to precede all local anæsthetic operations with two doses of morphine and scopolamine. The object of this hypodermic medication is is no sense to combat pain or to gloss over an insufficient local technique, but simply to produce in the patient a calm and easy mental attitude rather than that state of worry and tension which may make even a painless operation an acutely unpleasant experience. The size of the doses must be regulated for the individual case, according to (1) the age and weight of the patient; (2) the magnitude of the proposed operation; and (3) the patient's temperament. The second dose can often be most nicely estimated after carefully observing the effect of the first. For an average varicocele case the following would be a suitable dosage:—

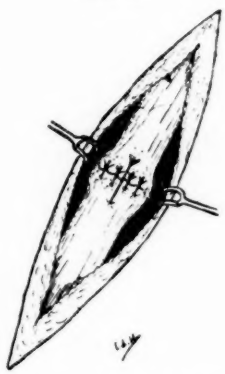
Morphine, gr. ¼	Two hours before operation.
Scopolamine, gr. 1/150	
Morphine, gr. ¼	One hour before operation.
Scopolamine, gr. 1/200	

It is desirable to have screens around the bed from the time of the first injection, and to forbid all talking and unnecessary noise in the theatre while the operation is in progress. Questions such as "Does it hurt?" and "Do you feel that?" do no good, and are likely to act unfavourably by suggestion. Scopolamine produces a dry mouth, and patients are sometimes distinctly uncomfortable from this cause; in such cases water may be given.

Technique of Novocaine Anæsthesia.

The novocaine technique consists of two injections, of which the first is done as follows: The cord should be picked up through the skin with the left thumb and forefinger at its point of exit from the external ring. A drop of novocaine is injected into the skin over the cord as high up as possible. Before this is done the patient should be warned that he is about to feel a sharp "pin-prick." Next, a fine needle, about 1½ inches long, should be passed, detached from its syringe, through the anæsthetised point into the centre of the cord. There is no danger of wounding the vas, as it readily rolls away from the point of the needle. If a vein should be punctured (this does not often happen) the appearance of blood at once makes it evident. Four cubic centimetres of a 2 per cent. solution of novocaine are now gently injected into the cord. A larger amount is not necessary, and may produce sufficient œdema to interfere with the neatness of the operation. In about five minutes a conductive anæsthesia of the scrotal contents on the injected side will have developed. In the meantime one makes the second injection—an ordinary infiltration of the skin along the line of incision with the same solution, starting at the point through which the first injection was made. This method of anæsthesia is suitable also for orchidectomy, epididymotomy, the radical cure of hydrocele, and other intrascrotal operations.

FIG. 3.



I wish to express my thanks for the accompanying drawings to Lieutenant C. Langton Hewer, R.A.M.C. (S.R.), formerly my anæsthetist at the Military Hospital, Woking.

CLERICAL, MEDICAL, AND GENERAL LIFE ASSURANCE SOCIETY.—The annual report of this society for the year ending June 30th, 1919, records a satisfactory year of working. The new life business exceeded anything in the past 95 years of the existence of the society, and the total premium income was £496,697, an increase of over £20,000. Claims by death, including £29,542 directly due to the war, amounted to £367,586 in all. The expenses of management, after allowing for the cost of annuity business, represented £14 5*s.* 8*d.* per cent. of the premium income, as compared with £12 18*s.* 7*d.* per cent. in the previous year.

NOTES ON

AN INFLUENZA EPIDEMIC

AS IT AFFECTED PORTLAND PRISON AND QUARTERS.

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THE following statistics are presented in the belief that some interest will be created by information concerning the influenza epidemic as it affected a particular community during October and November, 1918. Portland Prison and its official quarters occupy a position in the S.E. corner of the island, on high ground immediately above the sea. The buildings are distinctly separated from other houses occupied by the general population, but so far as the quarters are concerned there is free communication with the outer world, for the children attend one of the council schools, where they come into contact with those from other localities, and many of the adolescents are daily occupied in surrounding districts. A community of this kind presents special facilities for statistical purposes, for practically every case of disease comes under the notice of the medical officers, and figures can be obtained with a considerable degree of certainty.

Housing and Population.

The prison quarters consist of 139 houses, mainly set in parallel rows. At the time of the epidemic 15 of these houses were unoccupied. The remaining 124 houses were inhabited by 475 persons, or less than 4 per house. There were in addition 17 officers who were living in cubicles within the prison walls at the time and sharing a common mess-room; we have included these officers in the table below. The prison and quarters have their own drainage system and are kept in the best possible sanitary condition. The prison officers are, on entry, a carefully selected body of men, and their hours of duty are regular; whether their families are more healthy than the average can only be a matter of conjecture. Owing to retirement on attaining the age-limit there are very few persons over 60 years of age living in the quarters, but, on the other hand, many of the younger officers are on active service. Many of the officers and prisoners are much exposed to the weather while at work. A certain number of officers with their families live in private houses outside the quarters, and are not included in our statistics.

Distribution of Infection.

The following table shows the age and sex distribution among the 492 persons forming the community, and gives the approximate percentage of each age group attacked:—

A = Attacked. B = Escaped. C = Percentage attacked.

—	Males.			Females.			Total.		
	A.	B.	C.	A.	B.	C.	A.	B.	C.
21 years and over ...	25	94	21·0	44	103	30·0	69	197	25·9
14 to 21 years	13	10	56·5	24	19	55·8	37	29	56·0
5 to 14 years	41	26	61·2	38	16	73·0	79	42	65·3
Under 5 years	8	9	47·0	6	16	27·0	14	25	36·0
—	87	139	38·5	112	154	42·1	199	293	40·4

The most striking feature of the epidemic displayed in this table is the exceedingly large proportion of the community attacked—namely, 40·4 per cent.; but it will be seen that this figure mainly represents cases among persons under 21 years, although they constitute less than half the population. In explanation of such a high incidence among the young people we have formed the opinion that school infection is primarily responsible, and we consider this factor to be of sufficient importance to merit discussion under a separate heading. Meanwhile, in relation to the subject of distribution, we would mention that only two of the officers living in cubicles were attacked, and they were promptly isolated in the prison hospital.

Schools and Spread of Infection.

It is significant that the first cases to appear in the quarters were among children who were attending school, and an examination of the totals in the above table reveals something of interest in connexion with this subject. It will be observed that 65·3 per cent. of all school children in the community were affected, and that out of the 199 cases of infection that occurred in the quarters school children furnished 79 cases, or 39·5 per cent. The following table, showing the age distribution of these 199 cases of infection, renders this point more clear:—

	Per cent.
21 years and over	34·5
14 to 21 years	18·5
5 to 14 years (school age)	39·5
5 years and under	7·5

Such a high percentage of infections among school children could not reasonably be explained on the grounds that they are more susceptible than others not of school age; and as in this case they constitute only 24 per cent. of the community it cannot be attributed to anything under this head. It will, we think, be now understood what an enormous part can be played by schools in time of epidemic. In the one we are considering, our observations revealed to us that in the great majority of houses the infection first attacked the school children, and then spread to other members of the household. Unfortunately, owing to the rapidity of spread, most of the children were infected before school closure could be effected.

Cases of Infection among the Prisoners.

At the time of the epidemic there were 270 convicts in the prison and 8 of these were attacked, all from different working parties. In two of these cases the source of infection (from an officer) was clear and definite, and one of these two cases appeared to have infected four other prisoners who sat near him during chapel service. In the remaining two cases the source of infection was obscure. These cases were promptly isolated and the chapel services suspended. No further cases appeared.

Incubation period.—In one of the cases which occurred among the prisoners we could definitely fix the incubation period as being not less than two or more than three days.

Clinical Features and Complications.

In the early and concluding stages of the epidemic the cases were mild and uncomplicated, but soon after its commencement they became severe and were characterised by sudden onset, with intense headache and pains in the back and limbs. The temperature usually ranged between 101° and 103° F., and in the worst cases reached 104°; in the uncomplicated cases it generally remained up for four or five days and then began to fall by lysis. Severe catarrhal symptoms were present in all these cases. Among the complications hæmorrhages were very frequent, epistaxis being the usual form, with rectal hæmorrhage a good second; hæmoptysis occurred in two cases, and hæmatemesis in one. There were six cases of broncho-pneumonia, and only one of lobar pneumonia.

Mortality.

No deaths occurred in the prison or quarters, and this statement applies also to those officers and families living outside. The mortality among the general population of the island was distinctly high, especially among the young adults, and so far as our fortunate experience in this respect is more than a coincidence we venture to ascribe it to: (1) The excellent housing conditions and entire absence of overcrowding; and (2) the ability of the sufferers, with the exception of mothers of families, to take to their beds at the first signs of illness, and remain there until convalescent.

Treatment.

Although this must be largely empirical, we pin our faith to sod. salicyl. with ipecac. and spt. amm. aromat. during the pyrexial stage, and tonics during convalescence. In a few cases of the great prostration following the attack we were struck by the very good results which appeared to follow the administration of polyglandular preparations. Complications were treated as they arose.

Evidence of Protection Offered by Previous Attacks.

We had only 23 cases during the preceding summer epidemic, and ten of these were again attacked. One of these

ten cases developed pneumonia, and two others were attacked twice in this (October–November) epidemic, an interval of about three weeks occurring between each attack. On the other hand, these two and the remaining seven cases were mild, and occurred in households where the other victims developed a severe form of the disease. As a further instance which might prove helpful in relation to this question, we would mention the case of a household of six persons, four of whom developed the disease in a rather severe form; the remaining two, who were attacked during the summer epidemic and were the only members of the family affected at that time, escaped entirely.

Conclusions.

Our conclusions are few, but so far as our experience goes they are, we venture to think, soundly based.

1. Prompt isolation, when it can be effected, as in the cases which occurred among the prisoners, is undoubtedly the best means at our disposal for preventing spread. And as the result of isolation is evidence that the disease is spread by personal contact, all persons coming into contact with cases, whether isolated or not, ought to adopt some means of personal protection. For this purpose the wearing of masks would appear to be very effective.

2. At the first warning of an epidemic schools and other places of congregation ought to be promptly closed.

3. With regard to the question of protection being offered by previous attacks of the disease, the evidence at our disposal would seem to justify us in forming the conclusion that a previous attack does confer in most cases a certain amount of protection.

4. There was strongly impressed upon us the urgent necessity of organising some service of domestic help (quite apart from actual nursing) in all cases where the mother of the family is stricken with the disease. It is sad to see the mother suffering with, or convalescent from influenza (and our remarks, of course, apply to other diseases also), but compelled to attend to the needs of her young family, simply because there is no one else to do the work. We venture to think that some of the feminine activity and organising power, which is now being released from war services, might well be turned in this most essential direction.

We are indebted to the Directors of Convict Prisons for permission to publish this paper.

ON MYALGIC PAINS.

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THE phenomena of disordered states of muscles or fibrous structures constitute one of the most prevalent and puzzling causes for frank or obscure distresses or disablements. They occur in those otherwise in excellent health or while convalescing from almost any form of acute or chronic disease or injury. Fibromyositis—which is perhaps the best name offered—is often recognised as such, or may be so cunningly interwoven with other factors as to escape separate blame or suitable treatment per se.

Oftentimes the most carefully devised remediation for associated or original conditions proves inadequate to relieve this feature. Hence the experience of one on whose attention it has been forced by personal suffering, and who therefore sought diligently for means of relieving himself and clients, may prove helpful.

I.—*Fibromyositis and its Disabilities.*

Fibromyositis is one of the most common, disabling and often distressing of ailments, appearing suddenly and insidiously, remittingly or intermittently. It forms the basis of, or clinical background for, a vast variety of morbid states both physical and mental. The condition is not always painful, nor even tender, but capable on aggravation of exploding into torture and mental anguish. It obscures and befogs the clinical issue so often as to act as a serious handicap.

Among the distresses or disabilities referable to fibromyositis are: headaches, backaches, lamenesses, restriction of movement (often not recognised as pain states), deformations, faulty attitudes, intestinal disorders, even appendicitis. They often accompany or follow, seeming to be the effects of, acute disorders of varied origins. Sometimes there is osteophytic proliferations with decalcification of vertebræ, but even then treatment can effect cure. Referred pains, while due to particular causes, are many times aggravated by fibromyositis.

The means of cure lies in two chief directions, dietetic or metabolic regulation, and the resources of reconstructive or bio-kinetic measures. Of these, the latter are most prolific of relief and the former for removing the underlying causes and staying progress. Indeed, if a fibromyositis has progressed far enough there is only one means of radical emancipation—viz., by revision of conduct through reconstructive personal hygiene. Especial attention should be focussed upon the skin and muscles. My experience leads me to believe that without a thorough marshalling of reconstructive, especially manipulative, measures rheumatic states will persist or recur. Sometimes counter-irritation is necessary. The colon should be irrigated with much water, 4 or 6 gallons, in and out, and in and out again, till the whole gut is clean, repeated every other day for two weeks. To this it is well to add sodium chloride and sodium bicarbonate daily for four or five days.

So common a condition deserves attention for the reason that, in spite of its universality, it too often escapes recognition; many contradictory conceptions obtain as to its nature; many errors as to phenomena, progress, significance; also as to economic means for relief and cure.

Diagnosis, obscure in many definite clinical entities, frequently reveals the coexistence of a fibromyositis. Whether the derangements exhibited be sensory, static, or inflammatory, no treatment for the overshadowing disorder will be successful until the accompanying fibromyositis process is dealt with both as a possible source of origin of the pain and as a contributing cause of distress and disability. Tuberculous lesions often exhibit reflex or spastic muscle densities, as pointed out by Pottenger. These are, in my opinion, fibromyositic in character. So of diverse sorts of lamenesses, whatsoever other condition be present.

A fibromyositis is often the essential process when symptoms point reasonably toward more serious diseases or disorders. A fibromyositis may be acute, and, when prolonged, may be accompanied by moderate febrile reaction, so large and complex are the sources or origins. It is then obvious enough, as in a sharp attack of myalgia of the lumbar muscles, the scapulæ, the pectorals, muscles of the scalp, neck, and the like. The frequently recurring tenderness of the erector spinæ muscles, indicating irritation in the rami, are, in my opinion, of the nature of fibromyositis. To be sure, they point to irritations in the spinal subcentres, and these must be relieved in order to cure associated miseries or diseases.

Fortunately, manipulative treatments work both ways, not only dissipating the local tenderness but also reflexly stimulating the vaso-motor action in the subcentres, and thereby contributing to the nutrition in the disordered peripheral locality.

II.—*The Differentiation between Neuralgia and Myalgia.*

We should differentiate between neuralgia and myalgia. In neuralgia painful points are found in the nerve, at outlet or in continuity; where nerves emerge from bone especially. After being relieved there is no further local tenderness. In myalgia pain is located in the body of the muscle, especially at its thinnest part, where most expanded, and is always distributed over a larger area than is neuralgia; also tenderness persists between attacks. A zone of hyperæsthesia or hyperalgesia exists which does not parallel the nerves. Myalgic points or areas correspond to where muscle blends into fibrous structure or tendon. Myalgia often simulates angina pectoris (Peritz), acute gastritis, especially when the belly is distended with gas. Also it simulates cholecystitis, appendicitis, sacro-iliac disorder. A "sciatica" is often triumphantly detected, which in reality consists of fibromyositis in the muscles of the gluteal region, especially of the brim of the pelvis; also of the small lumbar attachments. Many lamenesses arise in muscle tenderness in the glutei and their fibrous attachments, only to be detected by expert finger explorations; they are curable by persistent manipulation readily enough.

Induration, infiltrations, thickenings are exhibited, giving evidence of chronic myositis at points of lodgment. Certain

stages are shown: (1) swelling, elasticity, sometimes glossiness of skin; (2) bogginess, œdematous states, a doughy feeling; (3) densities, rigidities, spasm, passing with age into ligament-like cords, which are tender to touch. These cord-like, stringy structures are characteristic of fibromyositis. They also are evidences of disturbed states (reflex spasm from a peripheral lesion) in paravertebral structures. In late maturity certain muscle fibres are replaced by connective tissue, and in these tendernesses are common, due to compressions of sensory nerve terminals when movements are made.

The two earlier stages are most sensitive. They likewise come and go—i.e., are less or more severe—but rarely intermit entirely so long as the condition lasts. In older forms of fibromyositis passive tenderness, as well as active sensitiveness, the organism becomes so adjusted that the sensory responsiveness sinks below the threshold of consciousness; hence is operative in causing vague, unidentified distress, weariness, sleeplessness, achiness, infirmity, atrophy, decrepitude, and mental depression or confusion. There may be no active sensory response; the awareness may be subordinated and only brought out by carefully directed tactile explorations, or by movements active or passive, and especially when fatigue or exhaustion coexists.

Favourite seats of myositic thickenings are the head (scalp), neck, in and about the knee, hip, shoulder, and ankles, wherever muscles overlap; inside of the elbow; insertion of the pectoralis major, the latissimus dorsi into humerus, the intercostals, of the abdominal wall, the crest of the ilia, the glutei. Indeed, the buttocks are a fertile ground of fibromyositic complexities variously named, but always hindering locomotion.

III.—*Diagnosis and Treatment.*

The means of diagnosing latent forms of fibromyositis is largely by expert tactile apperception (an educated fingertip). The relief and cure, as said, lie in two directions—digestive regulation and the varied resources of reconstructive measures. Especially useful is heat, pressure, manipulation, separation of fibres by hand, or counter-irritation by blistering or cautery. Indeed, if the condition has lasted long and complications have progressed far enough there is only one reliable means of emancipation—viz., through the resources of revised conduct, personal hygiene, improving habits, notably by attention to skin- and muscle-training, passive and active.

The point I wish to emphasise here is that whatsoever be the pathologic process underlying most protracted or subacute maladies there frequently co-exists forms and degrees of fibromyositis complicating matters and producing distress or disablement or both, which demands relief per se. When once the fact becomes realised and the main diagnosis is correct, but there is superadded another cause for the pain or disability and the clinician devotes his attention equally to both, then his duty to the patient is by way of fulfilment.

It is a common experience with me to meet a case in whom dissatisfaction has arisen with former sound service, conditions which, however, so puzzled the physician that he confidently asserted the original one persisted. As a graphic example:—

A vigorous young man consulted me for what he said his physician, an admirable exponent of the best ability, told him was a pleurisy, which at any moment might grow worse, and that it was dangerous for him to work. The man, feeling absolutely well except for a pain on taking a long breath, and sadly needing to earn money to live, determined to seek other advice. There certainly was no pleurisy, and there certainly was a point of fibromyositis along a rib and a local tenderness. This I promptly dissipated. He could then breathe with no pain, and returned to work immediately.

Another, a master mason, whom the foreman on some repairs on my house wished to work on the job. This man rested under the medical ban of a subacute appendicitis for 10 months. This proved to be merely fibromyositis of the rectus abdominalis, and disappeared overnight under iodine treatment and strapping. He did his full work from that moment.

The most puzzling problems are those in which an obvious fibromyositis refuses to be cured, although much relieved, and other obscure phenomena persist. In most such instances there may be assumed a chronic irritation in the cell bodies of the cord from which the vaso-motor nerves arise which supply the distressed part. The form is often a protective spasm, usually detectable as a cord-like mass in paravertebral muscles. A permanent cure may be effected by freezing the spinal area two or three times, or by exerting some powerful mechanical stimulus to the part whereby adhesions are freed and the nerve outlets (gray rami) resume their functions unhindered.

Of the many forms of reliable treatment some are described later. In any event some expert (really expert) manipulation serves as an efficacious, almost necessary, adjunct. The main object is to relax the over-tension (protective spasm) in the affected structure, to diffuse the local stagnation, and to separate and stretch the muscle fibres from centre to affected locality.

In most instances manipulation should be applied as nearly as possible to the origin of the muscle, where the main nerve enters the mass, not neglecting the belly or mid-portion, nor the insertion. Hand treatment should aim to empty the spastic muscle of vitiated lymph and blood; should be applied not too long at a time, two or three minutes with intervals to let the patient rest from the pain induced, and then repeat two or three times; total, five or eight minutes. They should be again done on the same day or on successive days, being guided by the degree of "soreness" produced.

In the case of tonic muscle-spasm, often large and sudden, forcing the part first in one direction then quickly back again, will throw a long disused part first out of its false position, then back into a normal one. This often overcomes the chronic spasm. It is by such means that many miracles of the bone-setters are produced. In the chronic and obdurate forms treatment should be repeated at least twice a week, gradually increasing the force and depth of pressure and length of seance. Manipulation should always be followed by active movements made by the patient, carefully directed functional training, to secure accuracy in action and to equalise the coördination. Movements should be made in accord with laws of "protective reactions" and "distributing the direction of the load," with due consideration to states of contracture or relaxation—tonus or hypertonus, which I have described elsewhere.[1]

A particularly important accessory measure is expert muscle training in exact directions and degrees of force. By this means confidence is restored as well as adhesions and contractures overcome. It is common to meet sufferers who have been admonished to make no movement which causes pain. The truth is, when a movement causes pain that movement should be made repeatedly with increasing force.

The skin should be educated to protect itself and the hypersensitive muscles from chilling by friction with a dry towel on rising and on going to bed; also by gradations of exposure to air and by alternations of heat and cold as by hot and cold douches. Dry skin friction is vastly superior as a tonic to the peripheral circulation than is bathing in any form. The late Weir Mitchell frequently used a "salt towel"—i.e., a coarse "kitchen towel" dipped in salt water and dried—for friction.

Summary.

1. Keep in mind that any obscure muscle pain, brief or protracted, or lameness, or morbid alteration of posture or gait or tenderness, may be due to fibromyositis, hence determine by critical palpation what the afflicted or suspicious areas signify.

2. Relief of these local disordered conditions, whether painful, tender, or structurally significant, may clear up the matter, or in any event simplify the problem.

3. Cure of a fibromyositis may contribute materially to the limitation of any existing collateral sensory disorder or "transferred pain" by the removal of sources of reflex irritation, protective spasm, or by reducing the sum-total of morbid factors present.

4. Local hypersensitiveness in muscle masses, due to any one of a large variety of primary or secondary causes, frequently are exhibited in the form of a fibromyositis, revealing other co-existing factors, such as a focal sepsis, a central irritation, or a peripheral diseased state.

5. Cure of the local manifestations may be achieved by revising and regulating conduct through personal hygiene by modifications of diet, regulating exertion, reducing fatigue, especially exhaustion from excessive repetitions of monotonous motions as caused by restricted acts in labour; by

[1] See "Tonic Spasm," N.Y. Medical Record, October, 1918.

accustoming the patient to abrupt exposures to temperature changes and generally equalising force expenditure through salutory modifications in habits in accord with rational demands for activities.

6. In treatment, whatever other curative agencies are employed, do not omit to consider thorough colon irrigations; nor deep manipulations, after careful determination of conditions in the affected area.

7. While constitutional derangements demand attention and regulation, the local anomaly should receive adequate care. Sometimes powerful revulsives are needed—by blister, cautery, freezing, iodine, &c.—always followed by strapping with Z.O. plaster. The main cure, however, is always by manual treatment directed to the neuro-muscular mechanisms.

8. After due attention has been afforded by suitable measures applied to the constitution, to special organs, and to the affected area, there remains a need for functional education in the form of (*a*) mental readjustment to the complex problems of chronicity, protracted disability, and previous disappointments, loss of confidence in performing movements, &c.; and (*b*) re-educating the bewildered muscles to do their appointed work with precision and confidence.

9. Finally, the individual who suffers at any time from fibromyositis needs to learn and to practise thorough hygienic habits essential for his or her "diathesis," or "type of tissue cells," or peculiarities of neuro-muscular adjustments, or capabilities of elimination. Among the first of these good habits (euthenics) is to live as much as possible out of doors in all weathers, maintaining reasonable activities, and, while not over-fatiguing, yet to beware of the one unpardonable sin of physical and mental stagnation, deterioration from disuse.

10. Red Cross work, "drives" to raise funds for the "War Chest," canvassing for the sale of War Bonds and war-saving stamps, and other enthusiastic expenditures of energy afford great opportunity to stagnant mentality that will do much to relieve many patients. It offers an incentive that will keep their brains and bodies in useful activity and emancipate them from weakness and pain.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

CLINICAL SECTION.

A MEETING of this section of the Royal Society of Medicine was held on Nov. 14th, Dr. H. BATTY SHAW being in the chair.

MALIGNANT DISEASE OF THE FACE.

Mr. HENRY CURTIS read a paper on Three Cases of Malignant Disease of the Face, one of the lower lip, two of the nostril, surviving after more than five years, illustrating modern methods of radical operation. The parts removed and one of the patients were exhibited.

CASE 1.—A man, aged 53, with extensive squamous epithelioma of the left half of the lower lip encroaching on the angle of the mouth. Operation in June, 1914, the patient being exhibited at the meeting.

CASES 2 and 3.—Primary carcinoma of the external surface of the ala nasi, a condition of considerable rarity apparently, one in a man aged 43, operated on in December, 1913, the other in a woman aged 57, operated on in August, 1914; both cases alive and well, November, 1919.

The operations were devised in general conformity with the principles laid down by Sir Lenthal Cheatle in planning incisions for the removal of a cancer from the front of the face, so as to excise the growth with, wherever possible, at least three-quarters of an inch of skin around, and taking the entire thickness of the cheek, "everything down to the bone," together with all the lymphatics and glands likely to be involved en bloc. The old V-shaped incision for growths of the lower lip was condemned, the author quoting Rowntree's statistics from the Middlesex Hospital, showing 31 per cent. of local recurrence out of 126 cases, in the majority of which this operation had been used. Infected lymphatics, he said, leading from a growth diverged as they passed to the corresponding glands; whereas the lines of the V-shaped incision converged, thus cutting across channels infected with cancer cells. This explained the great frequency of local recurrence. Cancer of the lower lip usually spread along the margin, but more rarely it spread downwards to a greater degree than usual before it eventually curled round the angle of the mouth to reach the upper lip. Hence in early cases it was impossible to say in which of the two directions the cancer was mainly spreading, and it was therefore advisable that the incisions be planned to include both paths of spread.

As to the two cases arising in the ala nasi the speaker referred to modern views on cancer of the upper lip, which he considered to be to some extent applicable also to growths spreading in the opposite direction—i.e., from the ala nasi—downwards. Sir Lenthal Cheatle had pointed out complications which did not concern growths in the lower lip or angle of the mouth: 1. The early spread along the alveolar margin of the upper jaw, particularly in growths beginning in or spreading to the central part of the upper lip, which is shorter here than elsewhere. Atrophy of the normal tissue, and contraction of the newly formed connective tissue which encircles and pervades a cancer are factors leading to invasion of the jaw. 2. When cancer begins in the upper lip the columella is more invaded than the ala nasi. The septal origin of the orbicularis oris forms an easy pathway by which the disease reaches the columella. A more radical operation than had hitherto been generally advocated was therefore necessary for growths of the upper lip and ala nasi.

EXHIBITION OF CLINICAL CASES.

Mr. ARTHUR EDMUNDS showed an infant with a Congenital Tumour (? Teratoma) on the head in the region of the anterior fontanelle. It was about the size of a goose's egg, was covered by thickened skin and of variable consistency, containing solid nodular material and some bone.

Mr. EDMUNDS also showed a case of Multiple Bone Abscesses. The patient, a young girl, had had a very serious illness some years ago, which had left her with bony synostosis of both hip-joints. Subsequently she had continued to develop suppurative foci in her bones with the formation of sinuses, through which exfoliated pieces of dead bone were extruded. The nature of the infection was unknown; there was no evidence of tuberculosis.

Dr. PHILIP HAMILL showed a young man with Aortic and Mitral Valvular Disease, who had developed an aneurysm of a femoral artery. This had been successfully treated surgically by ligature above and below and by extrusion of the clot. The patient's general health was good, and Wassermann reaction and blood culture were negative. The case was regarded as one of mild infective endocarditis with embolic aneurysm.

Dr. S. A. K. WILSON showed an elderly woman with a Cervical Rib on each side. The wasting of the thenar eminences was characteristic of this condition, being confined to the part external to the long flexor tendon, the adductors of the thumb escaping. Symptoms, which were only slight, had not appeared until recent years and were ascribed to loss of tone in muscles and ligaments due to her age and to consequent descent of the pectoral girdle.

Dr. WILSON also showed a case of Dislocation of Cervical Vertebræ in a woman, following an accident. In spite of gross dislocation between the fifth and sixth cervical vertebræ there had been no real injury to the cord. Only a few subjective symptoms remained, and the patient was able to move her head with considerable facility.

Dr. WILSON also showed a case of (?) Trophœdema. The woman had had some œdematous swelling of the right leg for over 30 years, and this was succeeded by œdema of the left. After removal of the breasts a similar condition appeared on the arms; it was segmental in distribution and amounted in degree to pseudo-elephantiasis. None of the usual causes of œdema were present, and the patient enjoyed good health except for a sense of weight and fullness in the limbs. There was no hereditary or familial history.—Dr. F. PARKES WEBER agreed with the diagnosis. He said that there were far more cases of trophœdema without a family history of the condition than with one.

The CHAIRMAN showed the case of Œsophagectasia described at length in our issue of Nov. 22nd, p. 923.

SECTION OF THERAPEUTICS AND PHARMACOLOGY.

THE TREATMENT AND MANAGEMENT OF DISEASES DUE TO DEFICIENCIES IN DIET.

A MEETING of this section of the Royal Society of Medicine was held on Nov. 18th, when Professor F. G. HOPKINS, of Cambridge, opened a discussion on the Treatment and Management of Diseases due to Deficiencies in Diet.

Professor HOPKINS said that the vitamine hypothesis of deficiency diseases is passing from the phase where novelty arouses undue enthusiasm or uncritical opposition into the phase of sound criticism. It is not surprising that the vitamines have eluded us for so long, for the earlier experimental students of nutrition never really used pure foodstuffs. The facts concerning scurvy might have led to the realisation of the truth much sooner, but that fashions in opinion helped to obscure the issue. Scurvy is a clear example of a deficiency disease, but even a worker like McCollum denied this for a time and ascribed it to intestinal stasis. The work of the Lister Institute, the production of scurvy in monkeys, and the quantitative evaluation of foodstuffs in respect of their value against scurvy, all put the matter beyond a doubt. With regard to infantile scurvy the question of dried milk is an interesting one. The infant does not as a rule develop scurvy on a dried-milk diet, although some proportion of the antiscorbutic vitamine in the milk has been destroyed. It is possible that the infant starts life endowed with an excess of the vitamine.

In beri-beri it is questioned whether the anti-beri-beri vitamine is the sole factor. Certain Japanese evidence suggests that it is not.

Rickets is less well established as a deficiency disease, but is of supreme national importance. The work of Dr. E. Mellanby is convincing of the all-importance of a factor connected with fats, but there may be other complicating agencies. The nature of the fat in the diet makes the difference between rickets and no rickets in experimental work, at any rate, and other factors are of minor importance. Investigations into accessory food factors may be complicated by the fact that the specific substances may be consumed without being absorbed. There is an increasing probability that the function of accessory food factors is connected with the stimulation of internal secretions. The response of the animal to the amount of one factor varies with the amount of other factors in the diet and will also vary with the rate of metabolism. In prolonged fasts deficiency diseases do not develop. To the mind of an experimentalist there is more sound evidence for the connexion of rickets with a deficiency in a special type of fat than for any other explanation. Pritchard has advanced the theory that rickets is due to an acidosis following general malnutrition, but the blood of rickety patients needs much more investigation before the existence of such an acidosis can be established.

A xerophthalmia occurs in rats fed on a diet deficient in special fat, and this is regarded by McCollum as a deficiency disease. Its incidence is puzzling, as it does not occur always in animals fed on vegetable fats, but only in some groups. When it does occur it clears up when animal fat is given. Among children in Denmark during the period of the most wholesale export of butter, a similar xerophthalmia occurred. It was investigated by Bloch, who was forced to the conclusion that the curative factor was animal fat.

With regard to pellagra, the evidence points to its being due not to the lack of a vitamine but to some other deficiency in the diet. When, many years ago, a group of rats were fed on a tryptophane-free diet, symptoms developed which might have been pellagrous, but it has not been possible to repeat this result.

Pellagra in Turkish Prisoners in Egypt.

Professor F. D. BOYD (Edinburgh) gave a short account of the report drawn up by himself and the rest of a committee asked by Lieut.-Colonel P. S. Lelean to report upon the health of Turkish prisoners in Egypt. Professor Boyd was himself at the time acting as consulting physician to the Egyptian Forces, and the committee with whom he coöperated consisted of Professors W. H. Wilson and A. R. Ferguson, and Drs. H. E. Roaf, H. M. Woodcock, W. Campbell, and H. R. K. Paton. The prisoners were found to show erythema, deficiency of hydrochloric acid, emaciation, low blood pressure, depression, and nervous phenomena—to be, in fact, suffering from pellagra. The first symptom appeared to be loss of appetite, followed by failure of hydrochloric acid, failure of pancreatic juice, failure to assimilate, decomposition of protein, and, finally, excretion of indican. There was also severe loss by diarrhœa. Metabolic observations were made upon Turks not showing these symptoms, and it was found that their excretion of fat and protein were both well above the normal, showing that they were already in what might be called a pre-pellagrous state. Careful investigations were made into sanitation and water-supply without anything being found to be amiss, and an exhaustive search for any causative organism yielded no result. Examination of the diet showed no connexion between incidence of pellagra and either total calorific value, or fat content, or total protein content of the diets. It was only when the concept of the biological value of the protein was applied that any light was thrown upon the connexion between diet and the incidence of pellagra. The human body must have certain amino-acids, and different proteins have different biological values according to their power to supply these essential building materials, and so maintain the body in nitrogen equilibrium. If meat is regarded as having a biological value of 1·0, milk is found to have a value of 0·96, beans of 0·8, and maize of only 0·298. It is only when the biological value of the protein in a diet falls below 40 g. that pellagra begins to appear. Failure to absorb may raise this value, as does also the performance of heavy work. For treatment, increase in the diet of protein of high biological value was found to cause the most rapid improvement, and administration of hydrochloric acid was helpful.

Scurvy and Beri-beri in Mesopotamia.

Dr. W. H. WILLCOX detailed his experiences in Mesopotamia with scurvy and beri-beri. The wastage from these two causes was very great, but the scurvy was limited to Indian troops, while beri-beri affected only the British troops. This sharp demarcation followed marked differences in the rations. The ration of Indian troops was very poor in antiscorbutic vitamine, containing 2 oz. potatoes and 4 oz meat daily as the sole antiscorbutic. The system of rationing in India was very defective, so that Indian troops arrived in Mesopotamia already partly depleted. The Indian escaped beri beri through his abundant ration of atta (whole cereal flour) and dhal (peas or other pul-es), while the British soldier had bully beef and white-flour only. Scientific steps were taken to remedy the ration, and the application of the vitamine hypothesis stamped out both these diseases.

Marmite was used as a prophylactic in beri-beri. It was observed that fresh meat seemed to be a valuable antiscorbutic, that tamarind (an Indian fruit) had some value, but that preserved lime-juice appeared to have no value at all. Lime-juice when freshly preserved with alcohol and salicylic acid seemed to have some value.

It was observed in confirmation of Professor Hopkins's statement that starvation had not induced deficiency disease in certain starved Kut prisoners. It is urgent that more scientific attention should be given to the planning of rations.

A letter was read from Dr. E. A. BARTON (University College Hospital) recommending "University Cream," a beef-fat preparation, cheap and suitable for infants.

Dr. MACKENZIE WALLACE described a substitute for the German article "Nutrose." It is derived from ground nuts and is a fine flour in which 5 per cent. fat is left. It was used as a culture-medium, and as a constituent of an emergency ration for British troops. Pigeons fed on polished rice were protected from polyneuritis by quantities of 9 g. nutrose and 18 g. of the biscuit, respectively, every other day.

Indications for Treatment.

Dr. H. E. ROAF pointed out that in deficiency diseases there are three special indications for treatment. First, to make good the deficiency, for which it is necessary to know the nature of the deficiency; secondly, to see that the curative substance, destined to make good the deficiency, is properly absorbed; and thirdly, to economise the expenditure of any substance in connexion with which the body lacking is particularly needed.

In pellagra the deficiency is believed to be one of protein of the right biological value, and consequently is a deficiency of aromatic amino-acids. The special amino-acid concerned

is suggested to be tryptophane, but none of these suggestions is proved, and zein, the protein of maize, which appears to be incriminated, is lacking in other amino-acids besides tryptophane.

With regard to the non-absorption of the preventive substance it is noticed that indicanuria (indicating putrefaction of protein in the alimentary tract) is a frequent symptom in pellagra. Dr. Wilson had pointed out that it was also to be observed in a certain number of persons in a normal non-pellagrous population; when pellagra occurs one may suppose it would attack first those who normally show indicanuria. Slight cases of pellagra usually recover readily in hospital, but severe cases often do not, and after lingering for as long as six months may finally die. Presumably the power of absorption is irrecoverably lost.

The third indication for treatment suggested was to economise the expenditure of any substance particularly connected with the factor lacking. The marked correspondence of the symptoms of pellagra with the symptoms of Addison's disease point to the sympathetic system being affected; and in fact a marked change in the ganglion cells of the sympathetic can be observed, the change being one of plasmolysis and degeneration. Any strain upon the sympathetic system is therefore to be avoided, such, for instance, as is involved in sweating. It has been observed that the heavier the work the greater the incidence of pellagra, and possibly it may be through its promotion of sweating that heavy work produces this result.

Raw Foodstuffs in Scurvy.

Miss MARGARET HUME (representing Dr. Harriette Chick, Lister Institute) dealt with the comparative value of raw food-stuffs in the prevention and cure of scurvy. To prevent beri-beri in armies marmite and wheat germ are to be recommended, as being three or four times more potent than the next most potent foodstuffs known—egg yolk and dried peas.

To prevent scurvy in armies, preserved lemon-juice, and germinated peas or beans are recommended. Raw lemon-juice is four times as potent as raw lime-juice and retains its antiscorbutic vitamine well. The development of the antiscorbutic vitamine in seeds on germination was discovered by Dr. Valentine Fürst, of Christiania, and has been confirmed by Dr. Harriette Chick and her co-workers. The discovery has been applied for the prevention of scurvy among troops at Archangel and for the cure of scurvy among Serbs by Dr. Wiltshire in the Balkans.

With regard to the prevention of scurvy in infants, any milk other than raw mammalian milk will be poorer in antiscorbutic vitamine and a slight degree of deficiency may be produced in consequence; other antiscorbutic should therefore be given—e.g., orange, swede, or tomato juice. Carrot, grape, or meat juice, on the other hand, are much less concentrated. Orange juice is 100 times more potent than raw milk. Even freshly dried milk may have lost half of its antiscorbutic value.

Effect of Temperature on Accessory Food Substances.

Dr. E. M. DELF (Lister Institute) gave a short account of the effect of temperature on the accessory food substances. The work of Chick and Hume shows that the water-soluble growth accessory factor is able to withstand a temperature of 100° C. for two hours.

The evidence for the heat stability of the fat-soluble growth factor is conflicting and needs further investigation.

Experiments on the effect of heating antiscorbutic substances, whether in the natural state (e.g., cabbage leaves) or as expressed juices (cabbage, swede, and orange juices) leave no doubt that a considerable destruction of the antiscorbutic vitamine occurs. After steaming cabbage leaves at 100° C. for 20 minutes, the minimum amount capable of protecting young guinea-pigs from scurvy is a daily ration of about five times that which, under the same conditions, is just sufficient in the raw state. When the effects of different temperatures are compared, the time of heating is found to have more importance than the temperature at which the heating is conducted. Cooking cabbage leaves for an hour at 60° C. has about the same destructive effect on the antiscorbutic as heating at 100° C. for only 20 minutes; but in the former case the leaves are still tough and in the latter case are soft and fit for human food. Slow cooking, therefore, such as is necessary in the use of a hay-box, is not suitable for green vegetables.

A similar destruction of antiscorbutic properties is also found to occur on heating expressed juices. Cabbage-juice freshly expressed and heated for an hour at 100° loses about four-fifths of its antiscorbutic value. Freshly prepared swede- and orange-juice are much more stable at 100° C.; but after heating for one hour at 130° C. swede-juice loses more than half, and orange-juice less than half, its original antiscorbutic power.

The Preservation of Orange-Juice, &c.

Dr. A. HARDEN (Lister Institute) gave a short account of experiments by Dr. R. Robison and himself on the drying and preservation of orange-juice, and by Dr. Robison on lime-juice and apple-juice. It was found in all these cases that a residue could be obtained by evaporation which still possessed a considerable fraction of the antiscorbutic potency of the original juice. This has also been confirmed in America by Givens. The lime-juice and apple-juice were evaporated on the commercial scale. The orange-juice was completely dried in the laboratory, and after preservation for two years in the dry condition was still highly potent. There seems to be every probability that fruit juices can be dried and preserved for a considerable time without losing their antiscorbutic potency, and such dried material should be a valuable source of antiscorbutic for explorers or troops.

Antiscorbutic Factor in Lemon-Juice.

Dr. S. S. ZILVA (Lister Institute) discussed the nature of the antiscorbutic factor in lemon-juice. He pointed out how, by the addition of an excess of calcium carbonate, and afterwards of absolute alcohol, the citric and other organic acids can be removed and a neutral solution from which the alcohol is removed in vacuo, containing little solids but the entire antiscorbutic content of the lemon-juice, can thus be obtained. This solution can be concentrated and even brought down to dryness under certain conditions without losing its potency. Such concentrated antiscorbutic solutions have been tested on monkeys suffering from acute scurvy and on scorbutic infants with success. He further drew attention to a simple method of removing the citric acid, which consisted in adding calcium carbonate to the juice and filtering. The solution so obtained is also active and well tolerated by infants. Owing to the simplicity of this preparation, which he suggested could even be carried out at home, it should find application as a prophylactic, especially in cases of infants who do not tolerate acidity.

The second problem Dr. Zilva drew attention to was the influence of incipient scurvy on the structure of the teeth of guinea-pigs. In a scorbutic condition the pulp in the teeth of these animals gets entirely disorganised. This change can first be observed at a stage when no other lesions are discernible. If similar changes take place in human teeth the matter is of great importance, since the possibility exists that both adults and infants may be able to live on diets deficient in the antiscorbutic factor to an extent not sufficient to produce declared symptoms of scurvy, but enough to produce changes in the teeth. This problem cannot be settled entirely in the laboratory, and he invited the coöperation of the observant clinician in order to settle this important point.

POST-GRADUATE AND OTHER MEETINGS IN MANCHESTER.—Since the start of the Michaelmas term classes and meetings have been fully up to pre-war standard. The Royal Infirmary staff have given a weekly post-graduate lecture or demonstration on Tuesday afternoons at 4.30 at which the attendance has varied from 40 to 60 or 70. The Salford Royal and Ancoats Hospitals have held a special post-graduate course for final Fellowship men, with a good attendance. The Manchester Medical Society has held regular afternoon and evening meetings, some clinical and some for the reading of papers. The clinical meetings have included a meeting each at the three chief hospitals, when the staff of the hospital visited has on each occasion made itself responsible for the programme. The Manchester Pathological Society has recommenced its regular monthly meetings. The Manchester Medico-Ethical Society has held one of its popular "supper meetings." For next year we are promised the annual meeting of the Association of Physicians of Great Britain and Ireland, probably some time in May, and there are rumours of a special course in medicine at the Royal Infirmary in the summer term suitable for the M.D. and M.R.C.P. examinations.

Reviews and Notices of Books.

The Physiology of Muscular Exercise. By F. A. BAINBRIDGE, M.A., M.D., D.Sc., F.R.C.P., F.R.S., Professor of Physiology, University of London. With 22 diagrams. London: Longmans, Green, & Co. 1919. Pp. 215. 10*s.* 6*d.*

THIS is the fourth of the valuable monographs on physiology edited by Professor E. H. Starling. The complexity of the processes underlying muscular exercise—of constant occurrence in daily life and the highest expression of the activities of the body as a machine—is admirably set forth. To obtain the utmost efficiency of the neuro-muscular machinery almost all the resources of the body are mobilised. Muscular exercise is as much a nervous as a muscular process; its beneficial effects are therefore evident in the psychical as well as the physical life of the individual. The author deals shortly with the transformation of energy on which muscular movements depend, and fully and in an attractive and practical manner with the adjustments necessary to provide the muscles with the oxygen and foodstuffs required. He expounds the effect of exercise on the respiratory changes, temperature and reaction of the blood, output, size, diastolic filling, behaviour, and mechanical work of the heart.

The net efficiency of the bodily machine varies from 22 to 25 per cent., and may occasionally reach 33 per cent., the chief factors influencing the result being "training," the speed with which work is performed, and fatigue. The oxygen consumption of the body per minute during exercise varies almost directly with the amount of external work performed. Dilatation of the heart normally occurs during exercise, and is a strictly physiological process. Dilatation, by increase of contractile power, enables the heart to increase its output per beat in response to a larger venous inflow. Such dilatation reaches its physiological limit when the heart at the end of a diastole fills the pericardial sac.

The chapter on coördinating influences is particularly interesting. At the outset coördination is due entirely to the central nervous system, but later other factors are involved. In this connexion adrenalin action is considered. As to training, regular and progressive exercise is the essential feature; the character of the diet, provided this is ample and is properly digested, is of subsidiary importance. In a "trained" individual the development of the heart corresponds with that of his muscular system. After cessation of exercise the circulatory and respiratory changes pass off rapidly, but the return of the metabolic changes are more gradual. There is no direct evidence that, provided a man is physically sound and in good health, exercise, however severe, is ever harmful or followed by serious after-effects. The harmful after-effects of exercise when they occur, and this is comparatively seldom, can almost always be referred, directly or indirectly, to disease of the heart.

The work appeals to students of medicine and to practitioners as well as to physiologists and others who work in laboratories. To each chapter is added an excellent summary, and the bibliography runs to 11 pages. The author has made a conspicuously luminous and practical contribution to the physiology of muscular exercise.

Surgery of the Lungs and Pleura. By H. MORRISTON DAVIES, M.A., M.D., M.C. Cantab., F.R.C.S. Eng., Hon. Capt. R.A.M.C. (T.), Consulting Surgeon to University College Hospital and to City of London Hospital for Diseases of the Chest. With 80 illustrations. London: Shaw and Sons. 1919. Pp. 260 + xxiv. 25*s.* net.

THIS book has been published at a most opportune moment; it appears to be the first treatise of weight on the development of the surgery of the thorax and its contents. It has come none too soon, for rapid strides have been made in recent years in this branch of surgery. The author combining as he is able to do the functions of surgeon, physician, and radiographer, is equipped to deal as expert with the subject from all points of view. The volume opens with a prolonged and careful study of the anatomy of the thorax, together with an account of all the most recent work on intrathoracic pressure. After a short chapter on diagnosis and prognosis in intrathoracic disease the author proceeds to deal with injuries and diseases of the lungs and pleura and their surgical treatment. The book is illustrated throughout by skiagrams of more than usual excellence, most of them taken by the writer himself, while the descriptions of actual surgical procedures gain greatly in value by the explanations of the practical difficulties which the author has met with in his own operations.

The New Physiology and other Addresses. By J. S. HALDANE, M.D., LL.D., F.R.S. London: Charles Griffin and Co., Ltd. 1919. Pp. 156. 8*s.* 6*d.*

IN this book, which consists of a series of addresses delivered from time to time during the past 11 years, Dr. Haldane puts forward his views as to the true aims of physiology, and the paths which physiological investigation ought to follow in the future. Dr. Haldane holds strongly that the mechanistic theory of life is dead, and that attempts to explain physiological or biological processes in terms of physics and chemistry are doomed to failure, since even the bedrock facts of physics and chemistry do not represent reality but only interpretations of reality. He believes, if we understand him rightly, that "life is just life," that to get a grip of physiological processes the whole life of the organism must be kept in view, and that the proper way to study biology is to find out the normal processes going on in the organism, and, above all, the relatedness of these processes to one another, which is so characteristic of the living organism.

It must be admitted that Dr. Haldane's views are directly opposed to what he calls the orthodox creed of physiologists, and at times he appears to regard himself as "a voice crying in the wilderness." But, although physiologists are rather chary of expressing their inmost convictions on general biological problems, we believe that Dr. Haldane's point of view is more widely accepted than he seems to imagine, and that it must tend to direct the stream of physiological research to a larger extent into biological as distinct from physico-chemical channels. Certainly every physiologist agrees with Dr. Haldane in believing that the study of a living organism consists in the study not only of the various processes taking place within it, but also in the coördination of these processes.

It ought to be added that the book also contains a most admirable and illuminating address on the relation of physiology to medicine, and on the advantages, both to medicine and to physiology, of a closer coöperation between them.

The Amœbæ Living in Man: A Zoological Monograph. By CLIFFORD DOBELL, M.A., F.R.S., Assistant Professor of Protistology and Cytology in the Department of Biology, Imperial College of Science and Technology. London: Published for the Medical Research Committee by John Bale, Sons, and Danielsson, Ltd. 1919. 7*s.* 6*d.*

AN attempt is made in this zoological monograph to give a concise and accurate account of all the amœbæ which live in human beings, and also to give a correct description of them from the standpoint of modern protozoology. To do this the author has had to revise the literature in addition to studying the organisms himself. This has involved a serious amount of work, and the sifting of the evidence for and against the different species has involved the author in much destructive criticism. The work consists of ten chapters, with a bibliography, an index, and a series of finely executed plates both in colour and in black-and-white. Chapter III., entitled "The Present State of Knowledge of the Amœbæ Living in Man," gives the uninitiated some idea of the general confusion prevailing in respect to the human amœbæ. Chapters IV. to VIII. describe the different genera and species as described and arranged by the author. There are four genera—viz., *Entamœba*, *Endolimax*, *Iodamœba*, and *Dientamœba*. The only species definitely proved to be pathogenic is *Entamœba histolytica*, but though the others are harmless they must be studied and known by the student of medicine in order to prevent him confusing them with the harmful. How this is done is clearly described in the book, and the student who masters the monograph will not fall into the errors which so many people—zoologists and medical men alike—have fallen into in the past. As a text-book for the student—and under the term student we include all who have to study

the amœbæ of man in relation to medicine or science—we can think of no better work than this. It is clearly and accurately written, and the man who is in difficulty should be convinced by the arguments as to what views to adopt. The author has criticised previous work with unsparing hand, and some of his rebukes might have been modified if not mollified, even though others may be well deserved. He has cleared away a mass of misconceptions and fallacies, and his work should remain a standard book on the subject for some time.

The Practitioner's Manual of Venereal Diseases, with Modern Methods of Diagnosis and Treatment. By A. C. MAGIAN, M.D., Honorary Surgeon, Wood Street Clinic for Genito-Urinary Diseases. London: William Heinemann. 1919. Pp. 215. 10*s.* 6*d.*

THIS manual will be read with interest. It is designed to give to the general practitioner a concise outline of the diagnosis, symptoms, and treatment of venereal diseases as we are acquainted with them to-day. The author is lucid, and on this account the reader will feel the more keenly the omission to give sufficient space to certain subjects upon which he will certainly desire fuller information. There is no detailed description of the anatomy of the sexual organs in the male and the female, and a clear diagrammatic representation of these would have frequently helped in following the text. The construction and manipulation of the urethroscope are not adequately explained, nor is the use of Kellmann's dilators. The attention given to the treatment of strictures is too cursory, and the subject of gonorrhœa in women only occupies five pages, despite its difficulty and importance. In general it may be said that the author's treatment of syphilis is interesting and stimulating, but not full enough for the general practitioner. Space given to the earlier lesions, especially in regard to differential diagnosis, would have made the work more useful even at the loss of later sections devoted to such matters as the training of ambulatory tabetics.

The call for another edition, which we regard as certain, will give the author the opportunity of adding to the value of a volume which is already useful but which might be made more so.

The Surgery of Egypt. By FRANK COLE MADDEN, O.B.E., M.D. F.R.C.S., Professor of Surgery in the Egyptian Government School of Medicine, &c. With 63 plates—one in colour—comprising 238 photographs and 3 line drawings in the text. Cairo: The Nile Mission Press. 1919. Pp. 394.

THE surgery of the tropics differs in some respects from that seen in temperate climes, and the present volume is a record of the author's 20 years' experience of surgery in Egypt. A large number of tropical diseases lie both within the province of the physician and that of the surgeon, and this is clearly brought out in the present work, especially when we consider the subjects of bilharziasis and filariasis, to quote only two examples. Therefore we are not surprised when we find pictures dealing with the life-history of the bilharzia in the snail and other cognate matters introduced into a treatise on surgery. The pathological lesions are dealt with in considerable detail, and numerous excellent photographs are incorporated. A very good description is given of the operation for abscess of the liver, and the details of the special operation for elephantiasis of the scrotum are full. Photographs are used freely to illustrate the different points in the operations.

The book will be of great use to all surgeons whose work lies in the tropics.

JOURNALS.

British Journal of Children's Diseases. Vol. XVI. July–September. Edited by J. D. ROLLESTON, M.D.—In an article entitled "A Visit to Germany" Miss Jane Addams and Dr. Alice Hamilton, of Chicago, describe the effects of underfeeding observed in German children in a visit to Germany after peace had been signed. Malnutrition was increasingly evident after the sixth year of life, for there was not enough food to supply the needs of a growing child, unless a good deal could be added by the purchase of smuggled food. Already the school children of Leipzig were said to average 2–4 cm. shorter than the pre-war average. In Frankfort the average loss of weight for the younger children was 9–10 per cent., and for the older children 10–15 per cent. The fall in the milk-supply, which in the case of Berlin, had dropped from a million litres daily in 1914 to 150,000 litres in the winter of 1918–19, was attributed to the lack of rich fodder, which Germany had always been obliged to import. The amount of school work required of the children had to be lessened to meet their lowered vitality, and the number of school attendances was also greatly reduced by actual illness. In Halle the school population had been reduced by half since the beginning of the war. There was an alarming increase in juvenile criminality owing to inability to obtain enough to eat from the rationed supplies. Increase in tuberculosis was most marked in German cities. Country districts had apparently suffered less. So striking had been the effect of partial starvation on tuberculosis among all classes, that Professor Kayserling told the writers that many German physicians were beginning to say that tuberculosis should be regarded primarily not as an infectious disease, but as a disease of nutrition to be controlled much more by feeding than by preventing infection. Other diseases which had shown a startling rise in prevalence and severity as the result of the food blockade were rickets, which formerly had been almost confined to the very poor or the inmates of private orphanages, and infantile scurvy. Lack of soap had also given rise to a great increase in the prevalence of skin diseases, especially of parasitic origin.

In his paper on the Ætiology, Prevention, and Non-operative Treatment of Adenoids Dr. Harry Campbell maintains that the chief factor in the causation of adenoids is intestinal indigestion, due mainly to an excess of imperfectly insalivated starchy food. Defective mastication is another important factor. He considers that the most effective way to diminish the prevalence of adenoids in this country is to alter existing dietetic conditions. Crusty bread should be substituted for the soft spongy article, puddings should be limited to one or two days in the week, and the quantity of sugar restricted. On the other hand, more raw vegetable food should be consumed. Dr. Edmund Cautley records a case of Alveolar Sarcoma with Metastases in the Skull in an infant, aged 2½ years, in whom the diagnosis during life had wavered between chloroma and hypernephroma. Post mortem a bilateral growth was found in the lumbar region adherent to the periosteum of the spine and compressing the kidneys. The growth extended along the spinal column downwards and branched off into each iliac fossa. Numerous breaking down nodules were penetrating the soft tissue of the scalp and bony outgrowths were piercing through the epicranial aponeurosis. Dr. Hazel Chodak relates a case of Chorea complicated by Gangrene of the Fingers in a girl aged 12. It was difficult to say whether the condition was due to embolism or thrombosis. Although there are numerous examples of gangrene after other acute diseases on record, no other instance of gangrene following chorea appears to have been described. A case of Multiple Epulides in a girl, aged 11, is reported by Mr. W. Warwick James. The abstracts from current literature are devoted to diseases of the new-born, diseases of nutrition, diseases of the liver and peritoneum, acute poliomyelitis, and treatment.

AT the last meeting of the Newton Abbot (Devon) Board of Guardians, owing to the want of facilities for the accommodation of expectant mothers in their own homes, it was decided that they should be admitted, upon payment, to the maternity wards of the workhouse infirmary.

THE LATE MR. N. C. DOBSON.—Nelson Congreve Dobson, F.R.C.S. Eng., Ch.M., honorary consulting surgeon to the Bristol General Hospital, and Emeritus professor of surgery at Bristol University College, died on Nov. 16th at his residence at Clifton, Bristol, aged 74 years. He was formerly lecturer on anatomy at Bristol Medical School. He had been ill for many years, and owing to his defective vision had to give up his surgical work at a comparatively early age. He was highly respected and esteemed in Bristol, and much sympathy was felt when his health compelled him to surrender active work. His hope of seeing once again his son, Commander Claude Dobson, R.N., D.S.O., to whom the Victoria Cross had recently been awarded, and who had been summoned by wireless from the Baltic, was unhappily not gratified.

THE LANCET.

LONDON: SATURDAY, NOVEMBER 29, 1919.

The General Medical Council and Direct Representation.

WE published last week the results of the election of Direct Representatives to the General Medical Council for England and Scotland; the Irish figures, which were not issued until after we went to press, are published this week. The report of the Registrar of the Council on the election has now been received, which includes the statistics of the voting. For England the number of papers issued was 26,539, but as 1796 have to be deducted from this number, for dead letters and letters to practitioners temporarily abroad, the possible total of voters was 24,743. From this possible total 10,675 votes were received, but only 9867 were counted, the other 808 being invalidated, either because the papers were received too late or, when received, were not filled up in compliance with the regulations.

When we look at the number of votes received by the English candidates, as published last week, we see that the four candidates supported by the British Medical Association have been returned very easily at the top, though Sir T. JENNER VERRALL, whom we congratulate on his position at the head of the poll, only had the suffrage of half the practitioners who took the trouble to vote. The four candidates who received the support of the Medico-Political Union follow in the voting upon the four representatives of the British Medical Association, the president of the Union, Mr. W. F. H. COKE, receiving 3534, and wanting by rather more than 1200 votes the total number of votes received by Dr. J. A. MACDONALD, the chairman of the Council of the British Medical Association. Probably the surprise of the election to many of our readers is the solid support that has been given to the members of the Union, who desire frankly to transform the medical profession into a trade-union, and whose views are certainly more popular with the constituency than we had imagined. While the percentage of the constituency who took part in the election in England—namely, 43·4—is below the average of the last five elections, it is higher than that of the last election held in 1916. We might hope this to signify that the medical profession is awaking again to the influence for good that ought to be exercised by the presence on the General Medical Council of the Direct Representatives of the general practitioner, but at present in Scotland and Ireland, equally as in England, apathy appears to reign. In Scotland, from a possible total of 4898 voters, 2306 papers were not returned, and Dr. NORMAN WALKER headed the poll with 974 votes, leading Dr. EBENEZER DUNCAN by 151 votes. In Ireland, out of a total issue of voting papers amounting to 3589, 2217 persons did not vote, and Dr. LEONARD KIDD was re-elected with 695 votes To the whole of the constituency of England, Scotland, and Ireland 34,026 voting papers were issued, and of these only 13,227 were returned, or 38·9 per cent. Such figures are not very encouraging to those who have worked in the past for the principle of direct representation, while it is particularly unfortunate at the moment that the medical profession should wear in the eyes of the General Medical Council an appearance of indifference to great and impending issues.

The autumn session of the Council has taken place this week, and the salient portions of Sir DONALD MACALISTER'S Presidential address can be read in another column. We refer here only to one of his opening phrases, in which he appears to foreshadow retirement from the position which he has filled for 15 years. We learn of Sir DONALD MACALISTER'S intention, if such it be, with considerable dismay. Undoubtedly he is a very busy man; and undoubtedly, with work so important in other directions, he could give up his presidential office in full consciousness of having borne a heavy burden both long and ungrudgingly. But this is not the time when the Council can well forego his wise and energetic guidance. An unusually heavy number of changes in the composition of the Council has occurred recently, and this body of men, who are largely untried as co-workers, will find themselves confronted with many new and grave problems in professional life. At this juncture Sir DONALD MACALISTER can ill be spared, and we believe that the profession at large share this feeling with the members of the Council. The early workings of the Ministry of Health and the modifications in panel practice that are imminent will ensure the views of the Council being sought in support of measures or procedures whose bearing upon the professional life may be critical. Of the new Direct Representatives, upon whom grave responsibility will thus devolve, four have already served on the Council under Sir DONALD MACALISTER'S presidency, and the influence of their voices will certainly be enhanced by this fact. The general practitioner may require all the help that he can obtain from the Council in the days ahead.

Inoculation Against Lobar Pneumonia.

THE susceptibility to pneumonia and to pneumococcic infections generally of negroes, and especially tropical natives congregated in labour camps and compounds in the Transvaal, is well known, and was investigated by Sir ALMROTH WRIGHT and his fellow-workers in 1911–12. Extensive preliminary studies led to the conclusion[1] that

[1] Sir A. E. Wright: On the Pharmaco-Therapy and Preventive Inoculation Applied to Pneumonia in the African Native. Constable and Co., 1914. THE LANCET, 1914, i., 1, 87.

prophylactic inoculation with a pneumococcus vaccine offered the best means of raising the normally small immunity to the pneumococcus in the black race. Mass experiments, in which large numbers of men were inoculated, were made and a large amount of information was obtained which, collected in the form of comparative statistics, "showed in every case a reduction in the incidence-rate and death-rate of pneumonia among the inoculated." The following table shows some of the results obtained:—

—	1911	1912	1913
Population (daily average strength) ...	10,426	12,549	15,284
	Per cent.	Per cent.	Per cent.
Proportion of population inoculated ...	0·0	About 50	About 92
Incidence-rate of pneumonia	4·0	1·28	0·74
Death-rate of pneumonia	0·97	0·31	0·14
Incidence-rate of other diseases	31·0	20·7	14·4
Death-rate of other diseases	0·51	0·38	0·34

The work thus begun by Sir ALMROTH WRIGHT was continued at the South African Institute for Medical Research, under the Director, Dr. W. WATKINS-PITCHFORD. In addition to continuing the provision of the vaccine required for routine inoculations, research was undertaken which led to the discovery by Dr. F. S. LISTER (contemporaneously with the American bacteriologists DUCHEZ[2] and GILLESPIE) that the pneumococcus can be separated into several serologically independent groups. The practical application of this discovery lies in the preparation of specific-group vaccines. A short summary of the practical results achieved now reaches us in the form of a pamphlet containing the evidence of Dr. WATKINS PITCHFORD,[3] submitted by him as Director of the Institute. It is shown in this publication that the fall in incidence and case-mortality of pneumonia, which began in 1911, has continued, and, further, that the only period when there was a halt in the downward tendency of the pneumonia curve (1915) coincided with a reduced issue, due to war difficulties, of the vaccine. The average annual death-rate from pneumonia for the years 1908 to 1911 was about 12 per 1000; from 1911 it had steadily fallen, until in 1918 it was less than 4 per 1000. Since the pneumonia mortality formerly represented over 40 per cent. of the general mortality, it follows that the general death-rate has sunk correspondingly. Whether the non-specific beneficial effect noted by WRIGHT and printed above has continued is not clearly shown.

Additional experience as to the value of prophylactic vaccination against pneumonia was obtained in the American Medical Corps during the European war. Lobar pneumonia was very prevalent in the American Army, especially in cantonments and among the coloured troops. At Camp Upton, CECIL and AUSTIN[4] inoculated 12,519 men with a vaccine consisting of Types I., II., and III., the dosage being 6 to 9 billion of Types I. and II. and 4½ to 6 billion of Type III.; the inoculations were generally three or four in number at intervals of five to seven days. The results obtained in this mass experiment were, briefly stated, that during ten weeks that the men were under observation, among the vaccinated troops (12,519) the (annual) pneumonia death-rate was 0·83 per 1000; among the unvaccinated troops (20,000) it was 12·8.[5] In this experiment it may be noted that the doses of vaccine injected were very large—10 to 15 billion—and that several inoculations were employed. Moreover, in a certain number of men there occurred local effects—sterile infiltrations—which caused discomfort and anxiety. These incidental disadvantages have been largely abolished by the use of a lipo-vaccine, that is, a suspension of the microbes in an oily medium. This technique, first employed by the French, has the following advantages: First, relatively enormous doses may be administered with no, or very slight, local or general symptoms; secondly, the immunising response is greater; and thirdly, only one inoculation is necessary. Using a lipo-vaccine, CECIL and VAUGHAN[5] inoculated 13,460 men with Types I., II., and III. of the pneumococcus in doses of, approximately, 10 billion of each type. The experiment was complicated by the occurrence of an epidemic of influenza, but the general result was extremely satisfactory; the incidence and case-mortality of pneumonia among the inoculated men were much lower than among the uninoculated. The results are among the most encouraging obtained in the whole range of vaccine-therapy.

[2] THE LANCET, 1919, i., 704.

[3] Statement of Evidence Submitted by the South African Institute for Medical Research to the Low Grades Mines Commission, August, 1919.

[4] Cecil and Austin: Jour. Exp. Med., 1918, xxviii., 19.

[5] Jour. Exp. Med., 1919, xxix., 5.

A Sample of the Population.

WHEN the Minister of National Service rested from his great task and handed over what remained of his functions to the Minister of Pensions he had accumulated the materials of a health census of the country, and when the report on this census appears it will surely afford a firm basis on which to build a new system of preventive medicine. What may be taken as a first instalment of the report appears at the front of our present issue. Dr. JOHN D. COMRIE, of Edinburgh, while presiding over a recruiting medical board, examined many thousands of unselected male citizens between the ages of 18 and 41 years, and he now reports on 10,000 of these examinations, the round number being chosen so that percentages or permillionages may be read off at a glance. He claims that these 10,000 were a fair sample of the countryside, comprising, as they did, both agricultural and industrial constituents of a lowland Scottish population. And his claim is confirmed by the close agreement in the familiar grades and categories between his sample and the sum of all the examinations in Great Britain supplied by the late chief commissioner of medical services.

Accepting, then, the fact that the sample was a fair one, what light does it throw on the character of the whole? Dr. COMRIE states that only 20 per cent. of the male population between 18 and 41 years of age were found free from noteworthy physical defect. This means that at a time when the army could pick and choose its men—which was obviously not the case in 1917—only about one-fifth of possible recruits would have been considered fully qualified in bodily physique for a military life. It should be added at once that many of the defects found, although likely to be tiresome and disabling to their possessors, did not necessarily preclude them from being placed in Category A or Grade I. Using the simpler classification

into grades adopted by the Ministry of National Service after the end of 1917, 52 per cent. of the sample were placed in the first, 21 per cent. in the second, 18 per cent. in the third, and 4 per cent. in the fourth grade, the remaining 5 per cent. being postponed for later classification. The general bearing of this result has been widely known for some time, but the further, and hitherto less recognised, fact emerges from Dr. COMRIE'S figures that between the ages of 18 and 23 years a rapid deterioration of physique occurs in the male population of this country. While three men out of four, he states, were fit for general military service at the age of 18, only two out of four remained fit at 23 years of age. If this disquieting observation is confirmed in the extended records, it will be one of the first tasks confronting the new preventive medicine to discover the causes of this swift deterioration, and to stop it at the source. Is it —which Heaven forbid!—an inherent failure on the part of the germ-plasm to attain its full development? Is it due largely or entirely to the present conditions of industrial life which become operative during this particular five-year period of life? Is it due in some measure to the appalling conditions found in the teeth of recruits? At the age of 18 years Dr. COMRIE found the teeth generally sufficiently good for practical purposes, although frequently even then the upper incisors were beginning to decay. With advancing age the state of the teeth became progressively worse, and of the sample 10,000 recruits 928 had artificial teeth, while another 1120 were urgently in need of them. Whichever of the two later factors suggested is found to be the more productive of harm, consoling it is that each is within the range of preventive medicine in its broadest aspect.

It may be urged that the standard of health required for the strenuous life on active service is not precisely that needed for the pursuits of peace, and that our aim is not necessarily to produce a nation of "strong men" and prize-fighters. It has often been insisted that the possessor of a physical frame, with some measure of disability of which he is aware and careful, may outlive his comrade whose physical development is apparently beyond reproach. And, of course, Dr. COMRIE'S figures and those of the National Service in general, refer only to physical data. But no one who studies these figures carefully can do other than realise the existence of a vast amount of preventable disease which might have been avoided by attention to the beginnings in early natal or even in antenatal life. Sir GEORGE NEWMAN states, in his recent outline of the practice of preventive medicine, that the results obtained from recruitment do roughly form a kind of index of the health of the people, and of their upbringing in infancy, childhood, and adolescence. We may, indeed, bear with some equanimity the discovery that over 2 per cent. of all recruits have mitral systolic murmurs, that varicose veins were found in approximately 5 per cent., and that hernia was present in 3·6 per cent. But if we have not settled down to an ignoble acquiescence in the inevitability of ill-health, the prevalence of dental caries and of other preventable disease must excite dismay and stimulate us to determined action. The publication by the Ministry of Pensions of the records within its possession will, we trust, not be long delayed. They will form a complete justification for every measure yet conceived or to be conceived by the Minister of Health.

Annotations.

"Ne quid nimis."

SYNTHETIC FOOD.

IN a paper read before the Society of Chemical Industry, a reprint of which has just reached us, Mr. A. Chaston Chapman opened up some attractive questions connected with the employment of micro-organisms in the service of industrial chemistry. So important, he thought, were the developments in this field that he pleaded for the formation of a national Institute of Industrial Micro-biology. When we consider, he said, the wonderful synthetic processes accomplished by the leaves of plants under the stimulus of light, the formation of starch or of protein in the growing plant, the conversion of carbohydrates into fat in the animal organism or by some of the microscopic fungi, or any of the numerous instances of enzyme action; and when we compare the ease and completeness with which these complex transformations are effected at ordinary temperatures with the clumsy and often wasteful syntheses of the organic laboratory, we must realise how far we are still from understanding Nature's methods, and how much we have to learn before we can hope to imitate them. He quoted the following remarkable instance, amongst many, of the powers of synthesis possessed by micro-organisms. One of the professors of the Institut für Gärungsgewerbe in Berlin received in 1916 from a pupil, stationed on the Eastern front, a small specimen of a growth found on the stumps of certain trees in the district. After considerable investigation it was found that the growth contained an organism which exhibited some very interesting features. Thus, not only did it produce under certain conditions considerable proportions of fat, but it also had the property of building up crude protein from ammonium salts (without any form of organic nitrogen) in the presence of phosphoric acid and traces of compounds of potassium and magnesium. Since, as Mr. Chapman points out, ammonium salts could be obtained readily from the air, and inasmuch as the carbohydrates resulting from the acid hydrolysis of wood could be used as a source of carbon it was clear that this organism rendered it possible in the short space of 36 hours to build up fat and protein from such comparatively cheap raw materials as ammonium phosphate and the acid conversion products of sawdust. It is some years ago now that the late Sir William Crookes urged the importance of manufacturing fertilisers from the air by the formation of nitric acid and the subsequent production of nitrate. That has been accomplished on a commercial scale, and a further step has been the synthetic formation of ammonia. If now our methods of cultivation, by the employment of micro-organisms, prove feasible, the practice of agriculture may well lie in new directions, with the application of micro-biological methods taking a prominent place. It is to be hoped, however, that such methods will not detract from the æsthetic qualities of food, which are of well-known physiological importance.

A GALLERY OF RADIOGRAMS.

AN exhibition will be held at the Royal Photographic Society's house, 35, Russell-square, London, W.C., under the auspices of the Röntgen Society, from Jan. 6th to Feb. 7th, 1920. The exhibition, to

which admission will be free, will consist of a collection of prints illustrative of the various applications o X rays, and an early intimation of the probable number of prints to be shown from those willing to contribute will be welcomed by Dr. R. Knox, 38, Harley-street, London, W.1. During the course of the exhibition, which will be open from 11 to 5 daily and till 9 on nights of meetings, two meetings will be held. On Jan. 6th, at 7 P.M., Dr. George H. Rodman will lecture on "The X Rays from the Popular Standpoint," and at the same hour, on Jan. 13th, a discussion on "Some Aspects of Radiology" will be opened by Major G. W. C. Kaye. The following rules have been drawn up for the guidance of members:—

1. Entries must be delivered at 35, Russell-square, London, W.C.1, addressed to the Selection Committee, Röntgen Society, not later than 11 A.M. on Saturday, Dec. 27th, 1919.

2. Prints must be mounted. They may be framed *passe partout* or otherwise. Those in frames or under glass must be provided with rings or other means for hanging.

3. Each exhibit must bear on its back its title, a number corresponding with that on the accompanying list (see paragraph 4), and the name and address of its producer. It is expected that exhibitors who have received assistance in the production of their exhibits (other than mounting and framing) will notify the nature and extent of such assistance.

4. A numbered list, preferably on foolscap, of all exhibits submitted must be enclosed with each collection of prints, and any points of special interest shown in the radiographs should be here noted.

5. The retention or rejection of prints entered will be deputed to a small selection committee appointed by the council of the Röntgen Society.

It is hoped that the society will receive such contributions from its members as will make its first exhibition an unqualified success.

DENTAL CARIES AMONG AFRICAN TRIBES.

ALTHOUGH it is generally accepted that dental caries is due to the fermentation of carbohydrates around the teeth, there is still a wide divergence of opinion as to the part played by the various foodstuffs included in that group. Dr. J. Sim Wallace and others maintain that the cause lies in the decadent character of the carbohydrates used at the present day, the removal of the fibrous element and the fine division of the starch particles making the foods, when prepared for consumption, into a soft, sticky mass which requires but little mastication and tends to cling about the teeth. Dr. Stanley Colyer, who has criticised this view,[1] holds that the cause of caries is to be found in the introduction into the diet during recent years of unstable carbohydrates represented by the fermentable sugars and soluble starches. The result of his observation on the diet of certain African tribes would seem to support the view he holds:—

(1) The Barotze, a people living on either side of the Upper Zambesi, have as their chief foods cassava and mealies. Cassava is a shrub with large tuberous roots, which, after soaking and drying, is pounded into a fine white powder, possessing a large, but very finely divided, fibrous constituent. It is prepared for eating by sprinkling the powder with water which has been just brought to the boil and then stirring with a stick, the resultant mixture being an elastic and rather sticky mass. Mealies are also prepared as a thick glutinous mass. The food requires very little mastication and tends to cling about the teeth, which are not cleaned after meals. Now, amongst the Barotze caries is uncommon, while marginal gingivitis and peri-odontal disease are extremely common. The caries which does occur progresses slowly, and seldom if ever starts on the approximal surfaces of the teeth.

(2) Amongst the natives living near or upon the Lakes Mweru and Bangweulia, whose staple food is red millet, periodontal disease is very common, but caries is even less common than in the Barotze, only one tooth in 270 being carious. The comparative freedom from caries in these two groups, Dr. Colyer remarks, cannot be due to the self-cleansing action of the foods, for they are soft and sticky; nor can the immunity from caries be attributed to the absence of carbohydrates, for the foods eaten contain a high percentage of this element; cassava about 20 per cent., maize and millet about 70 per cent. These foodstuffs, however, do lack the presence of easily fermentable carbohydrates in the form of the various sugars.

(3) In the Transkeian territories the staple foods are mealies and Kaffir corn, but in addition a considerable quantity of sugar is eaten; the sugar is mixed with the porridge, is sometimes taken raw, and two, or at times three, tea-spoonfuls are added to each cup of tea or coffee consumed. Mothers give sugar to their children by day and sometimes at night to pacify them. Amongst these natives caries of the teeth is common, the interstitial surfaces being frequently attacked. Natives are seen with dentures completely ruined by caries. Caries of the incisors is common, and the young are as frequently affected as their elders. Periodontal disease, on the other hand, is comparatively rare.

To sum up: In the three groups of natives referred to the staple foods are similar; among the two groups comparatively free from caries sugar is not used, but in the third group where caries is prevalent sugar forms an article of diet. These facts certainly support Dr. Colyer's view that the fermentable sugars are the important factor in the production of dental caries.

[1] Dental Record, vol. xxxvi., No. 1; vol. xxxvii., No. 9; vol. xxxix., No. 11.

THE CYCLE AND MOTOR-CYCLE SHOW AT OLYMPIA, LONDON.

A SPECIAL Motoring Correspondent writes: The fifth annual exhibition of motor-cycles, three-wheel runabouts, and bicycles opened at Olympia last Monday and closes to-day. Large attendances are showing the public interest both in cycling and motor cycling. There are many developments on exhibition, some constituting real luxuries. Among other improvements, variable gears, weighing little more than a pound, provide speeds to suit every contingency of gradient, surface, or weather. There are back wheels easily removable for tyre changing; new models of frames, which should well cope with the strains and stresses of the worst roads; oil-bath chain-cases, rust-proof rims, and effective brakes with simple adjustment to take up wear. In the galleries, which are a happy hunting ground for those who have money to spend in keeping a machine up to date in respect of accessories, are shown saddles, chains, tyres, plugs, and lighting outfits. Motor-cycles certainly provide a cheap means of transit, and as such may appeal to many doctors. The small two-stroke engine, of great simplicity, as well as the two- or four-cylinder side-car combination, are all well represented, and with every modern improvement. The side-car is a cheap form of motoring of a thoroughly reliable kind. For those sufficiently mechanically minded to do little repairs, there is the advantage that the problem of running costs may be dismissed. The impression the exhibits has given is that the chief improvements are in the direction of accessibility and simplicity. Great advance has been made in the springing of the frames by the use of laminated springs, as in the A B C and the Royal Ruby, by shock absorbers on the Triumph, and by horizontally set coil springs for the head of the machine in the Sunbeam. Vertical and V two-cylinder engines are still numerous, though the horizontally opposed two-cylinder air-cooled engine is well represented. The objection urged in the early days of motoring, that horizontal engines were

more apt to wear oval on account of bed wear, may perhaps not apply so much to light cycle engines. Time will anyway show. On the slower and heavier horizontal motor engines, such as the Benz and early Wolseley, oval wear certainly did take place. With regard to transmission, the belt-drive is retained on many favourites, such as the Rudge. Others, as the Enfield, Humber, and Rover, use chain driving gear—a method that modern clutches render quite permissible. A good feature on the Rover is a chain-guard. Prices are, of course, higher than before the war, but the increase, on the whole, does not exceed the ratio of the depreciated purchasing value of money.

THE TEACHING OF OBSTETRICS.

WE printed in THE LANCET of Sept. 13th a full abstract of the report, drawn up by a committee of the Section of Obstetrics and Gynæcology of the Royal Society of Medicine, on the teaching of obstetrics and gynæcology to medical students and graduates in London, and commented then upon some of the important questions raised. The section itself is to devote a whole session to a discussion of the report on Thursday, Dec. 4th, at 8 P.M. The discussion will be introduced by Dr. T. W. Eden, chairman of the Teaching Committee of the section, and a criticism of the report, drawn up by Dr. Herbert Spencer, Lady Barrett, and Dr. H. Williamson, will be read by Dr. Spencer. Copies of the report and of the criticism may be obtained on application to the Royal Society of Medicine.

EPIDEMIC STOMATITIS.

A LEAFLET on foot and mouth disease, issued by the Board of Agriculture and Fisheries to facilitate early diagnosis and notification, describes the following symptoms:—

"In the early stages of the disease the animal is lame and frequently smacks its lips, and shows by the movement of its tongue that the mouth is the seat of suffering; and the saliva flows freely from the mouth. An examination of the mouth shows the existence of vesicles on the tongue and on the inner part of the upper lip and on the pad. These vesicles show themselves in the form of a tough white skin which can be easily stripped off, and a red, raw surface is found beneath. The animal seldom refuses food, but rolls it about in its mouth, and often drops it instead of swallowing it. In most instances the feet are affected as well as the mouth, and blisters will form between the toes and on the heels between hair and hoof, causing the animal to walk tenderly, and frequently to catch up one foot after the other and shake it as if to dislodge something which was producing pain. In milch cows the teats may be affected with vesicles, especially at the opening of the milk duct. This often leads to sores and crusts being formed, which prevent the ready flow of the milk. The disease frequently exists simultaneously among the cattle, sheep, and pigs of the farm."

Medical officers of health and their assistants have been instructed to exercise the strictest vigilance in the supervision of carcasses and meat, with special attention to the heads, tongues, and feet. Not only the flesh but the milk from cows affected with foot and mouth disease is almost certain to become contaminated when vesicles or ulcers are present on the teats and udder. Practical experience indicates that the milk of affected cows is frequently infectious; a slight trace of the serum from a vesicle may easily infect 50 to 100 quarts of milk. The disease may be transmitted to calves and swine, and to man through butter or cheese as well as by milk. Recent outbreaks of foot and mouth disease at Lawford Heath and Tamworth have been attributed to butter and cheese sent from Germany to prisoners of war in this country. These products were rancid on arrival, and were carelessly thrown on to a neighbouring grazing field. Man may be severely or mildly affected. The symptoms are fever, weakness, conjunctivitis, nausea, vomiting, and diarrhœa, with formation of vesicles on the mucous membrane of lips, mouth, or nose, and on the ears, fingers, or other parts of the body; sometimes the skin is red and the joints painful. In children catarrh of the stomach and death may result from drinking infected milk; many cases have been reported of children showing blisters on the tongue and lips running into sores. Suspicion of the disease in any quarter, whether by direct or indirect evidence, should be notified at once. Lesions of the mouth in animals that may be confused with foot and mouth disease are: Traumatic injuries of the epithelium of the mouth; chemical and thermic injuries; superficial actinomycotic lesions; pseudo-aphtha or erosion; mycotic or benign stomatitis; contusions of the feet, especially in pigs; sore feet and inflammation of the interdigital space. However, the recognition of foot and mouth disease is so important that animals presenting any of the symptoms mentioned in the leaflet, unless obviously of traumatic origin, should be retained for inspection by an expert.

A NEW PUBLIC HEALTH ACT FOR SOUTH AFRICA.

A NEW Public Health Act, or sanitary code, for the Union of South Africa has been recently passed, and its main provisions will come into force not later than Jan. 1st, 1920. This Act establishes for the Union a Department of Public Health which shall be under the control of a Minister, and in respect of which there shall be a Government portfolio of Public Health. The functions of this new department will be to prevent or guard against the introduction of infectious disease into the Union from outside; to promote the public health; to prevent, limit, or suppress communicable or preventable diseases within the Union; to advise and assist provincial administrations and local authorities in regard to matters affecting the public health; to promote or carry out researches and investigations in connexion with the prevention and treatment of human diseases; to prepare and publish reports and statistical or other information relative to the public health, and generally to carry out in accordance with directions the powers and duties in relation to the public health conferred or imposed upon the Governor-General or the Minister by this Act, or otherwise. A body is to be established under the title of "Council of Public Health," consisting of the Minister as chairman, the chief medical officer, and seven other members (not being officers in the public service), who shall be appointed by the Governor-General; four of these seven other members must be medical practitioners selected on account of special knowledge of, or practical experience in, matters relating to public health or medical research. The duty of this council will be to advise the Minister and the Department on public health questions. The Governor-General must, under the Act, appoint a chief health officer, and so many assistant health officers, pathologists, medical inspectors, port health officers, and other officers as he may deem necessary. The chief health officer and the assistant health officers must possess a degree, diploma, or certificate

in public health or State medicine granted after examination by a recognised university or medical corporation, and registrable. Every urban and rural district council may, and when required by the Minister shall, appoint a medical officer of health and one or more sanitary inspectors. All questions relating to the duties, tenure of office, and remuneration of these officers must be approved by the Minister; and provision is made for the combination of two or more districts to appoint jointly such officers. In addition to provisions for notification and other general measures for controlling infectious diseases, the Act has special sections dealing with tuberculosis, venereal diseases, vaccination, port sanitary administration, public water-supplies, meat, milk, and other articles of food, sanitation, and housing. The Act embodies improvements which experience elsewhere has shown to be necessary. Taking into consideration the conditions present in South Africa, the provisions are satisfactory, but occasionally they go a little beyond what would be thought permissible at home; for example, in dealing with the detention of "contacts" until they are released by authority, one section sanctions the use of guards and force to detain them, and, "in case of absolute necessity, the use of firearms or other weapons, and the arrest without warrant of any person who has escaped from such detention or isolation." When the Act has been put in force we may expect to see important developments in the sanitary circumstances and administration of the Union of South Africa.

THE NEED FOR SCHOOLS OF PSYCHIATRY.

THE discussion which took place at the Medico-Psychological Association on Tuesday afternoon centred round the need, which has become vastly more urgent during the war, of increased facilities for the care and treatment of early mental cases. Dr. C. Hubert Bond, in opening the discussion, assumed the existence of this need and urged the correlated need for the adequate teaching of psychiatry. Psychiatric clinics closely affiliated with general hospitals he regarded as an integral part of the clinical facilities of every medical school, and this as much in the interest of organised study and research as in that of overcoming the reluctance of mental patients to submit to remedial care in the early stages of their malady.

PELVIMETRY AMONG FILIPINO WOMEN.

AN interesting series of observations have been carried out by Dr. Acosta-Sison and Dr. Calderon[1] on the pelves of Filipino women admitted into the obstetrical department of the Philippine Hospital. As the result of measurements of the pelvic diameters made in 1237 cases they come to the interesting conclusion that the measurements of the average Philippine pelvis correspond most closely to those of the average contracted pelvis among white Americans. In this connexion they suggest that this latter type of pelvis is not an abnormality, but the normal pelvis of the Southern European element in the composite American population. The great majority of native-born Americans are of northern European stock, and the southern American element appears as a minor or abnormal type. There is a marked difference between the average negro pelvis and that of the average white American; is it then not natural to suppose that the Asiatic might present a type, or types, of pelves differing from both of these? The authors, by the graphic method of plotting their measurements, show that they can distinguish three main types of pelves among Philippine pelves, and the correlation of these types with those of other Oriental people, when they are available, will form a most interesting study. A further series of measurements carried out by the authors tends to confirm the view held by Whitridge Williams, Daniels, and others that a diminution in the diameter between the two ischial tuberosities does not necessarily mean a prolonged labour, so long as there is a corresponding increase in the posterior sagittal diameter. Another conclusion which these investigations bring out is that pelvic contraction sufficient to require Cæsarean section is relatively rare among Philippine women, since of 27 such operations 24 were done for other conditions than pelvic contraction.

[1] The Philippine Journal of Science, vol. xiv., No. 3, 1919.

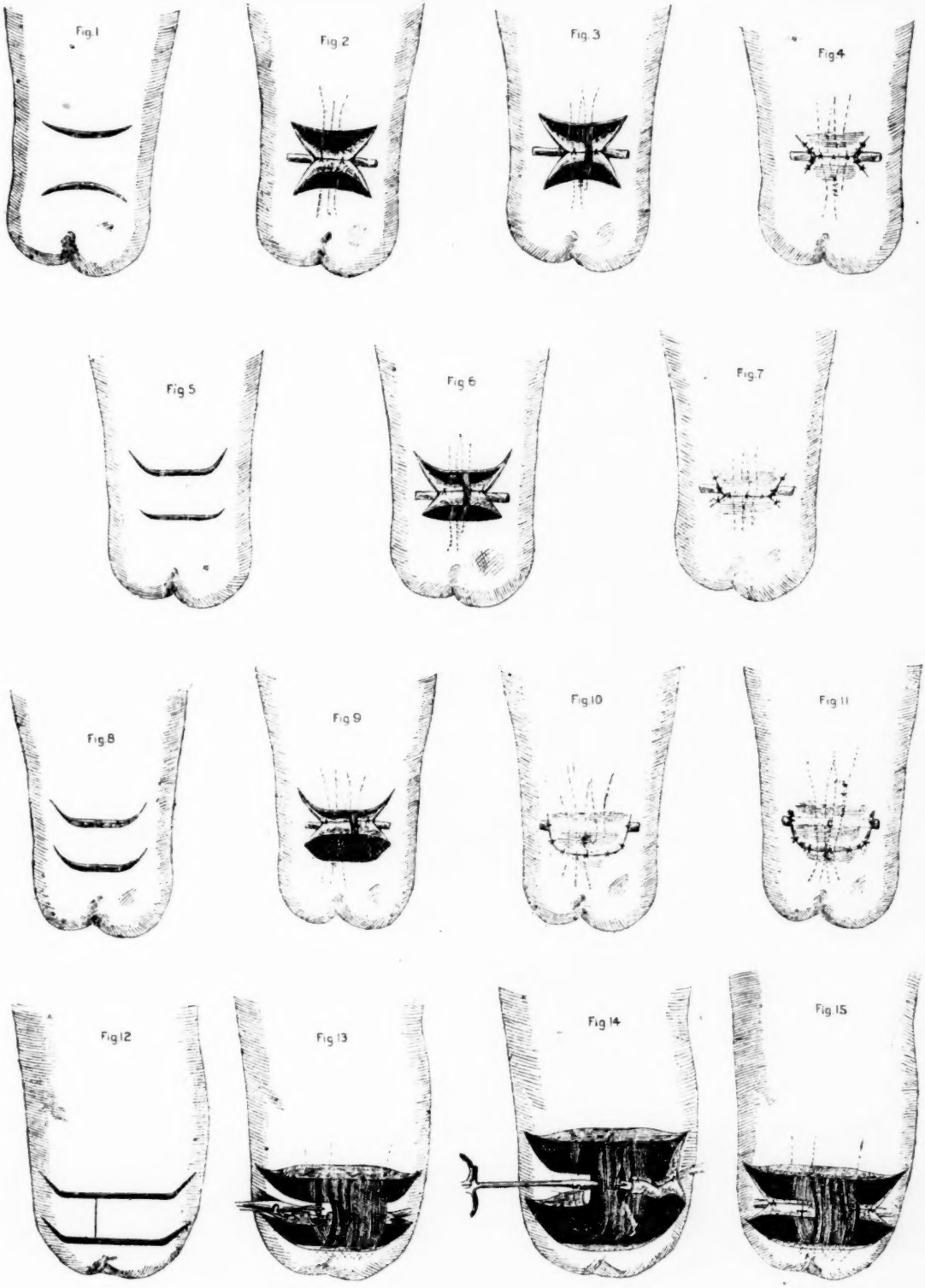
THE TECHNIQUE OF KINEMATIC OPERATIONS.

Professor A. Pellegrini published in 1917 various methods of dealing with the bones in amputations with the object of facilitating the formation of plastic motors. In the *Clinica Chirurgica* of January, 1919, he has described further operative procedures with the view of forming a plastic motor loop and of overcoming certain defects in what is known as the Sauerbruch-Rochet method. This method deals with a considerable flap, detached throughout its whole length, which is sufficient to canalise a motor that is entirely muscular. The flap so detached has but little vitality, especially at its free end, and has in fact a tendency to necrose at its extremity near the margin of the canal. It is, moreover, subject to marked retraction, and, if œdematous and rich in fat, the cylinder formed is so thick that the canalisation of the motor becomes very difficult and may, in the process, lead to laceration of the muscular fibres. Professor Pellegrini describes several variations of his technique, and we reproduce his woodcuts, which render the details more easy of apprehension.

Variation I.—1st stage: Two parallel cutaneous incisions in a transverse direction 3 to 4 cm. apart, somewhat diverging at their extremities (Fig. 1). 2nd stage: Folding back the skin edges and superficial fascia thus marked out round a strip of gauze and fixation with two catgut sutures (Fig. 2). 3rd stage: Tracing out and isolation of one or more tendons or muscles and passing them in front of the tunnel of skin and suturing them in such a way as to form a loop enclosing the tunnel of skin (Fig. 3). 4th stage: Plastic for drawing together the skin, so as to completely cover the motor and perfect the orifices of the cutaneous tunnel (Fig. 4). The shape of the incisions facilitates the drawing together of the skin-flaps over the plastic motor at the end of the operation, which can be completed at the same sitting and without undue dragging. In Sauerbruch's method, on the contrary, it is not always easy to complete a local plastic operation at the same sitting, nor is it easy without making other incisions to cover up the denuded area left by the skin utilised for the tunnelisation. The new method is simple and easy, and the skin lining the tunnel is thoroughly vital in its whole extent, since its normal connexions are little disturbed. The process has, however, the disadvantage that the two scars formed are superimposed; this can be avoided by drawing together the skin edges in forming the tunnel upwards in a proximal direction, and the skin edges of the surface covering downwards, as shown in the following variations:—

Variation II.—Two transverse incisions through skin and superficial fascia with oblique prolongations upwards, longer

FIGURES SHOWING IMPROVEMENTS IN THE TECHNIQUE OF KINEMATIC PLASTIC OPERATIONS.



in the first than in the second (Fig. 5). The other stages are completed as before. In this process the two cutaneous suture lines are on two different levels, and the rolling back of the skin to line the tunnel is made more easy (Figs. 6 and 7).

Variation III.—1st stage: Two transverse incisions prolonged upwards at both ends equally. The other stages correspond to those of the previous variations (Figs 8–11), but the resulting skin cicatrices are still farther apart. The turning back of the skin to form the tunnel in the second stage is made easier and occurs almost spontaneously, with a tendency to remain so, few or no sutures being necessary, and the cicatrix lying more to the proximal side is opposite to that against which the artificial extension exercises greatest pressure, which is a marked advantage. In this process a branch of the motor loop is separated distally or proximally for passage in front of the skin canal (Fig. 9) and resutured in front in various ways (Figs. 10 and 11). This may prove an inconvenience when it is necessary to cut and suture several tendons or thick masses of muscle, and may be avoided by another procedure which offers several advantages over that of Sauerbruch-Rocket.

Variation IV.—Cutaneous incisions the same as in the third variation, with the addition of a cross incision to divide temporarily the fold of skin in two equal or unequal parts so as to enable one or both to be passed either beneath or through the muscles or tendons of the plastic motor (Figs. 12–15). This procedure is more certain of success than that of Sauerbruch-Rochet, since each of the two portions of the divided fold are only half length and therefore of greater vitality. The operation is performed at a single sitting and is extremely easy of execution.

These methods may be compared with those of the Rizzoli Institute at Bologna, described by the director, Professor V. Putti, at the Royal Society of Medicine last year,[1] while the discussion on this subject by the British Orthopædic Association last week shows that in this country great progress is being made in this valuable branch of surgery.

THE BRITISH FEDERATION OF MEDICAL AND ALLIED SOCIETIES.

WE publish in another column a letter from the Federation directing the attention of our readers to Colonel F. E. Fremantle's Parliamentary candidature in the coming St. Alban's election. We are glad to see that under its new title the Federation does not forget its birth as the Medical Parliamentary Committee, for the professional feeling which called the Federation into existence is gaining in strength, that feeling being that when new legislation is in contemplation the medical aspects do not receive proper prominence. One way to remedy this is to increase the number of medical men with seats in the House of Commons. Few opportunities can ever occur to do this, for, as everyone knows, medical men will not be elected to Parliament in consideration of their medical position alone. None the less, the public can see that many of the largest questions at issue, whether in amendment of existing laws or in the creation of new ones, have the most intimate medical relations, so that the possession of medical experience may be now, and for the first time in this country, an asset to a candidate at the polls. In our view it would be a most powerful asset, if the public reads aright the signs of the times, and sees also that where the medical man desires that his own position should be properly recognised, he does this in the public interest every whit as much as in that of his profession. Good national health cannot be maintained without good medical service, and good medical service cannot be maintained upon bad terms. But this simple sequence of ideas has baffled many legislators, and it is to make the position clear that two conferences are being held this week—namely, the annual conference of Local Medical and Panel Committees of the British Medical Association and the conference of the same committees in connexion with the Medico-Political Union.

[1] THE LANCET, 1918, i., 791, 818.

THE PARIS FACULTY OF MEDICINE.

Dr. Henri Roget, dean of the Faculty of Medicine in the University of Paris, has sent us a copy of the illustrated prospectus for the academic year 1919–20. The Faculty of Medicine has undergone a complete reorganisation and, as noted in our Paris letter last week, has considerably enlarged its accommodation. The extension of premises will certainly be necessary as the Faculty will have to cope with the same largely increased entry for the next few years that is agreeably embarrassing our own universities. The number of French women students registered in the Faculty has increased steadily from 61 in 1906 to 295 in 1918, whereas the number of foreign women students in 1918 was only 225, as against the record year of 1912 when 325 were registered. Foreign men students reached in 1918 the high total of 558, and when the passport difficulty is over Paris will doubtless attract the women students as of old. Special arrangements are now being made for post-graduate work. Our French colleagues are peculiarly happy in their choice of terms. An invitation to qualified men and women to attend a "cours de perfectionnement" will surely not fall on deaf ears. Confusion still exists in many minds between the "diplôme d'état," which confers the legal right to practise in France, and the "diplôme de docteur en médecine de l'Université de Paris," a purely academic distinction more hedged about with safeguards. The State diploma is given to foreigners only under the same conditions as to French students, which implies that the same preliminary examinations must have been passed and that no foreign degrees or diplomas—excepting those of Roumania—are recognised as affording exemption. With the attractions offered in the prospectus before us Paris may look forward to a crowded academic year.

Dr. B. H. Spilsbury, pathologist and curator of the museum at St. Mary's Hospital, has been appointed lecturer on morbid anatomy and histology at the Medical School of St. Bartholomew's Hospital.

THE Council of Epsom College will shortly be considering applications for "France" pensions of £30 a year. Candidates must be registered medical practitioners in necessitous circumstances who are not less than 60 years of age. Forms of application can be obtained from the secretary of the College, Mr. J. Bernard Lamb, 37, Soho-square, W.1.

THE analysis of the voting for the Direct Representative for Ireland on the General Medical Council yields the following figures: For Dr. Leonard Kidd, 695; for Dr. James C. McWalter, 616; spoiled votes, 47; received too late, 14; did not vote, 2217. The total of voting papers issued was 3589. For Scotland we have already given the actual numbers of votes recorded. Out of a total issue of 4898 voting papers, 105 were rejected through informality, 338 were returned through dead-letter office, 100 were received too late, and 2306 papers were not returned at all.

THE GENERAL COUNCIL OF MEDICAL EDUCATION AND REGISTRATION.

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THE autumn session commenced on Tuesday, Nov. 25th, under the presidency of Sir DONALD MACALISTER.

It was announced that Dr. Knox, the representative of the Royal Faculty of Physicians and Surgeons of Glasgow, would be unable to attend during the present session in consequence of ill-health. Also that Mr. Waring, the representative of the Royal College of Surgeons of England, would be absent in Belgium.

The following appointments to the Council were officially notified, and the new members were formally introduced to the President and the Council:—

Sir George Newman, K.C.B., M.D., as Crown Nominee for five years from October, 1919.

Matthew Hay, M.D., as representing the University of Aberdeen for two and a half years.

Henry Roy Dean, M.D., as representative of Victoria University, Manchester, for two years from October, 1919.

John Beresford Leathes, M.B., representing Sheffield University until October, 1920.

The President's Address.

Sir DONALD MACALISTER then delivered his address, commencing with a résumé of the changes in the composition of the Council since the last meeting. He welcomed in appropriate terms the new members and offered the cordial acknowledgments of the Council to their retiring colleagues. With reference to the statistics of the election of Direct Representatives, to which allusion is made elsewhere, he said that he thought the dislocations of war-time might account for the large number of voting-papers returned through the Dead Letter Office, but that other causes must be invoked to explain the fact that more than half the practitioners resident in the United Kingdom failed to give any indication that they were personally interested in the election. Out of the total of 34,026 voting-papers issued only 13,227, or 38·9 per cent., were returned in accordance with the regulations and recorded as valid.

In the following graceful words he alluded to his own connexion with the Council. "Thirty years have passed since I was elected a Member of this Council by the graduates of the University of Cambridge. Fifteen years have passed since, by your favour, I was first appointed to be your President. None of those who were my colleagues in November, 1889, are now with us, though some happily survive in well-earned retirement. The time cannot be far distant when you will properly desire to entrust the responsibilities of my office to younger hands. But in the meantime I am pleased to think that the efficiency of the Council, in its work for the public and for the profession, is unimpaired. Its membership may change; but its devotion to the due performance of its functions, defined and limited as they are by the Medical Acts, does not diminish. And I am pleased to note also that its influence in the counsels of the nation on medical matters, and its effectiveness in the guidance of professional training and the maintenance of professional standards throughout the Empire, are steadily increasing. It possesses a heritage of accumulated experience and recorded service which will be handed on from generation to generation of its members."

Two years ago Sir Donald MacAlister predicted that in 1919 the number of new practitioners registered would be far below the average, and he was able to show that the registrations up to this date proved the truth of his prophecy, although some compensation had been afforded by the addition of 400 British practitioners to the Colonial list of the Register. Later he referred to the fact that the Province of Alberta in Canada had now legislated in favour of medical reciprocity with the United Kingdom, and that the Order in Council justifying the application to the province of Part II. of the Medical Act, 1886, would shortly be issued; one province only of the Dominion—British Columbia—now remaining outside the agreements concluded between the United Kingdom and the British Empire beyond the seas. He continued: "The numbers of registered medical and dental students for 1919 are, as was also foreseen, very greatly in excess of former records. They are filling the schools to overflowing; some schools indeed have had to postpone all fresh admissions until next April. There is apparently no doubt that in a few years the professional ranks will be more than replenished. In some minds the expected influx is giving cause for anxiety lest the new practitioners may not all find suitable employment when they reach the Register. But it must be remembered that, on the one hand, the wastage of war has been great; and, on the other, that the openings for skilled men and women will be multiplied by the increased activities of the new authorities concerned with the conservation of the health and physical welfare of the people. There will, in fact, be many new demands, and I for one do not doubt that they will ultimately match the new supplies. Under the Ministries of Health Acts various preliminary Orders in Council have been issued and transmitted for consideration to the Executive Committee. They deal with questions of machinery. The Secretary for Scotland has requested the Scottish Branch Council to send for his consideration the names of four persons specially fitted for appointment by him to the Scottish Consultative Council on Medical Questions, and his request has been complied with.

As I indicated last May, the two Nurses Registration Bills then before Parliament have been displaced by a new Bill introduced in the House of Commons by Dr. Addison. It avoids certain disputed questions, chiefly by leaving them to be decided, under the directions of the Minister of Health, to a General Nursing Council, which has power to frame rules. These rules have to be approved by the Minister, but it is not provided that, as in the case of the Midwives Acts, they are first to be transmitted to the Council or its Executive Committee for consideration. You will probably desire me to call attention, through the Lord President, to this omission. Dr. Addison's Bill does not extend to Scotland or Ireland, but I learn that separate legislation for these parts of the United Kingdom is contemplated. The Executive Committee will bring to your notice this and other points on which representations might be made."

With regard to the important developments of dental practice he said that a Bill passed on the recommendations of the Departmental Committee on Dental Practice is in hand, though the precise lines on which the Government propose to deal with the numerous and complex issues involved are not yet known. He alluded to the fact that the Royal College of Surgeons of Edinburgh now offered inducement to licentiates in dental surgery to pursue more advanced study by the institution of a higher diploma of dentistry, and added that numerous applications from American and Canadian dentists desiring registration in the United Kingdom indicated the ambition of many dental practitioners, mostly those who served in the war, to acquire a legal status in Great Britain. He continued as follows:

"Representatives of the National Board of Medical Examiners of the United States of America recently visited this country with the object of studying and reporting on the methods employed here for the testing of candidates for medical qualifications and for the control of their registration as practitioners. The Registrar, by my instructions, placed at their disposal the fullest information on these subjects which the office possessed. The representatives, by the courtesy of the licensing bodies, also attended a number of the qualifying examinations. We are informed that they derived much valuable knowledge from their visit. Their report will be awaited with interest on this side of the Atlantic. The influential movement towards the establishment of a high and uniform standard of professional qualification throughout the American Commonwealth, of which the National Board is the expression, may have issues of importance extending beyond the United States. The provisional reciprocity established with Belgium for the period of the war may terminate with peace, unless fresh legislation is undertaken by the Belgian Government. I am informed that the legal question is now being studied by that Government. We may express the hope that the experience of our hospitality to Belgian practitioners may lead to the admission of British practitioners to the privilege of practising in Belgium on equitable terms."

The Teaching of Preventive Medicine.

A preliminary discussion took place upon the interim report furnished to the Council by the Education Committee on the teaching of the preventive aspects of medicine. Of 41 medical schools and clinical hospitals in the United Kingdom from which information on the subject had been invited 12 only had replied in time for their views to be discussed by the Council.

MEDICINE AND THE LAW.

Profiteering and Medical Fees.

IN THE LANCET of Nov. 22nd we noted the judgment given by the Lord Chief Justice and two other judges in a case where an attempt was made to exclude chemists from the scope of the Profiteering Act, 1919. Many prosecutions have taken place since the one which originated the proceedings above referred to, and contemporary journals devoted to the interests of pharmacy are indicating by the amount of space which they are giving to the subject the consternation which is felt by their readers whose social, as well as their financial, position is affected. In his judgment Lord Reading followed the lines laid down by Mr. Justice Blackburn in Lee *v.* Griffin (1 B. and S., p. 278), and based his opinion on the consideration that the cost of an article must usually include something for services rendered. He might equally reasonably, it seems, have justified a contrary opinion by the reflection that few services are rendered without the price of them including something for materials. This aspect of the matter is alluded to by a barrister, Mr. F. W. Crossley-Holland, in the current number of the *Pharmaceutical Journal and Pharmacist*. "We may yet," he says, "see the Harley-street physician arraigned before the local profiteering committee because his three guinea fee for writing a prescription necessarily includes the cost of the paper upon which the prescription is written." He suggests that pharmacy may have gained something through the judgment, since there may be brought within its purview certain medical men who dispense their own medicines and who may prefer in future to confine themselves to the giving of advice. Probably members of the medical profession will view the prospect of charges of profiteering with equanimity, for it appears likely that in the minds of the general public, with whom may be reckoned the lawyers, they will certainly be classed with professional men.

Medical Fees and Litigation.

An action recently tried by His Honour Judge Tobin in the Westminster County Court had as its result an award of £10 15*s.* damages, with costs, to a costermonger who had injured his leg in a cellar-grating. The plaintiff, who had reckoned his loss at about £3 a week during the four weeks for which he had been laid up, was entitled to damages in the opinion of the court, and he had obtained them with the assistance of a solicitor and of the evidence of a medical man who had attended him. Sir Alfred Tobin's judgment was, however, accompanied by these words addressed to the successful plaintiff. "You are to get £10 15*s.* and of that 15*s.* only are to go to the doctor, and not a penny piece more. You will have the £10 and your solicitor will not ask for anything. Do not give a penny to the man who advised you to bring the action."

It appears that the plaintiff said in his evidence that about six weeks after the accident he had met a man who had given him the name of the solicitor whom he eventually employed, and that he had promised this man a 5 per cent. commission on anything that he got through bringing the action. In addition to this the medical man referred to above admitted that his charge of £2 3*s.* included attendances at the rate of 10*s.* 6*d.* per visit, and acknowledged further that he would not have expected a patient in the plaintiff's position to pay so highly out of his own pocket, but had based his fees on the expectation of their being paid by the defendants. No doubt the county court judge had considered these statements, and, holding the opinion that there was an element of speculation in the case, felt it his duty to prevent, as far as possible, persons other than the plaintiff from reaping any benefit beyond the strict due. Admittedly, speculation tending to promote litigation, through outsiders acquiring an interest, is rightly condemned. There are, however, two sides to such a question. We say nothing about the person who recommended the solicitor, after stipulating for an easily earned sum of 10*s.*; or about the solicitor, who, for all we know, could and would have obtained his costs in any event from a client capable of earning £3 a week. There is nothing in the reports to show that the solicitor "speculated" at all. The medical man, by his perfectly frank admission of his position afforded some ground for the judge's strictures. It is undesirable that a medical witness, or, for that matter, any witness, should have a personal pecuniary interest in the success of the party who calls him. It may or may not colour his evidence, but without his being conscious of it, it may well have a tendency to do so. From the moment, moreover, when it is discovered (and its discovery is a matter of probability if not of certainty), the fact that he has such an interest, will be used, justly or not, to discredit anything that he may say. The medical and the legal professions alike regard with disapproval and distrust anything approaching speculative intervention in litigation. A medical man, however, is not likely to become a frequent attendant at law courts for the sake of what he can get out of "the other side."

It should be added that, in the case in question, the medical witness was in no way whatever responsible for the action being brought, nor was it suggested that he had treated the patient with the idea that such a result would follow. When, however, the action was brought his error consisted in allowing the plaintiff to claim against the defendant expenses which he would not have been asked to pay if there had been no claim made. It was an excusable error to the extent that the charge made was a moderate one when looked upon as compensation for time spent. The hardship in such a case presses upon the medical man and also upon his patient. Medical men cannot afford to treat themselves as charitable institutions any more than barristers or solicitors.

TUBERCULOSIS.

Treasury Grant towards Institutional Treatment.

The Ministry of Health has issued a circular, dated Nov. 3rd, dealing with Treasury provision for sanatoriums and hospitals for the tuberculous. It is pointed out that the number of beds at present available is most seriously inadequate for ex-Service men and civilian adults, and that it should be increased immediately. The Treasury has accordingly agreed that capital grants in aid of the provision of additional sanatorium and hospital accommodation shall in future be made at the rate of £180 a bed, subject to a maximum grant of three-fifths of the total cost on the conditions that (1) the providing authority submit their proposals, including the necessary plans and particulars, to the Ministry at the earliest possible date, and in no case later than June 30th, 1920, and that (2) the providing authority complete the works at the earliest possible date, and in no case later than two and a half years from the date of the Ministry's approval of the proposals, unless the Ministry, with the concurrence of the Treasury, sanction extension of time. Such extensions will only be allowed in special circumstances beyond the control of the local authority. The annual grant of 50 per cent. of the net deficit on the Council's tuberculosis maintenance account will be available in aid of the annual charges for interest on, and repayment of, loans raised to defray the balance of the capital cost of additional accommodation. But both capital and annual grants will be paid only in respect of expenditure approved by the Ministry. The addressees of this circular are urged to submit their proposals to the Ministry before Christmas if possible. In the event of difficulties with regard to building materials, local authorities are advised to apply to the Director of Building Materials Supply, Ministry of Munitions, Caxton House, Tothill-street, S.W. 1.

School for Tuberculous Children in London.

On Oct. 22nd Lord Downham, chairman of the London County Council, opened Springwell House, Clapham Common, as a school for tuberculous children. Work has been carried on since April 1st, and the pupils, all under 12, number 75. Special exercises and recreations are provided, and the school is inspected weekly by the medical officer of the Battersea Tuberculosis Dispensary. Lord Downham said that 2000 London children were notified as tuberculous, and that 2000 others might become tuberculous unless carefully looked after. The figures can only be relative.

Report of the Central Tuberculosis Officer for Lancashire.

In his report for 1918 Dr. G. L. Cox, central tuberculosis officer for Lancashire, traces the high tuberculosis mortality of recent years directly and indirectly to the war. The average figures for the three-year period 1916–18 showed that 19 per cent. of the deaths from tuberculosis were not

notified and that 26 per cent. of the deaths occurred within three months of notification. In 1918 there was an increase in the number of deaths from consumption not previously notified. This state of affairs is deplored, as attempts to combat the disease are largely stultified while so many infectious cases remain uncontrolled by public health measures. During 1918 the tuberculosis officers examined 6037 persons, and there were 23,233 attendances at the 22 dispensaries. A comparison of these two figures with the corresponding figures for 1917 showed an increase of 28 and 26 per cent. respectively. By the end of 1918 the total number of beds available for residential treatment was 535, of which 50 were for children. In spite of the frequency with which the disease was notified late or not at all, the number of patients sent by general practitioners to the consultant tuberculosis officers before notification increased yearly. The results of sanatorium treatment of over 3000 cases are tabulated, a special table being drawn up to show the relation of the patients' working capacity after sanatorium treatment to the presence or absence of sputum, and the presence or absence of tubercle bacilli. The figures stress the importance of early diagnosis, and they show that the first year after discharge is the most critical for the patient. The results of domiciliary treatment and dispensary supervision are also tabulated, with special reference to the presence of sputum and of tubercle bacilli in the sputum.

Tuberculosis in the Malay States.

In a 16-page pamphlet Dr. J. T. Clarke, health officer of Kinta, has collected evidence in support of his thesis that the "massive dose" of tubercle bacilli is the all-important factor in the causation of phthisis. He notes, as rather remarkable, that there is a higher proportion of phthisis among Chinese males than females in Singapore, the proportion being 6·04 to 3·81. But if all the cases of phthisis, bronchitis, and pneumonia be classed together the difference is much less, the proportion being 8·99 males to 8·1 females. Bovine tuberculosis does not exist in the Malay Peninsula, no case of tubercle in a domestic animal has been discovered, and out of more than 250,000 pigs killed in the Ipoh abattoirs during the last four years, there was no case of tuberculosis. The disease in man must, therefore, be exclusively due to infection from human sources. In Singapore phthisis causes 16 per cent. of the total deaths. Discussing von Behring's theory of infection, which he rejects, Dr. Clarke observes that the Chinese seldom take milk, even as children, and that in the Straits Settlements the cattle are at present free from tuberculosis.

The Tuberculosis Campaign in France.

The City of Paris has provided pavilions at Brevannes, with 400 beds, for tuberculous ex-Service men and any members of their families found suffering from the same disease. Opening these pavilions early in November, M. Poincaré recalled the last visit paid him by the late Professor Landouzy, who urged a vigorous campaign against a disease which presented the most vital problem from a national standpoint.

The "American Review of Tuberculosis."

The September number opens with two papers on Artificial Pneumothorax. The first, by Dr. C. D. Parfitt and Dr. D. W. Crombie, covers a wide field and deals with the 63 patients treated by the writers over a period of five years. Like Saugman and other exponents of this treatment, they compare the results achieved by successful collapse of one lung with the results, or rather lack of results, observed in those patients for whom the treatment was prescribed, but whose extensive pleural adhesions prevented its consummation. The comparison is a tribute to the efficacy of this treatment. The verdicts of many of the patients read very much like a flamboyant patent-medicine advertisement. The most valuable feature of this paper is, however, the section dealing with the signs of a movable mediastinum, the significance of this phenomenon, and its treatment. The second paper, by Dr. A. G. Shortle, deals with Some Common Mistakes in the Administration of Artificial Pneumothorax. In nine cases treated by other physicians the writer found that though lung collapse had supposedly been carried out for a considerable time, it had not been even partially effected. One of these patients had thus received air in the lung, and at once had passed it out of the mouth for a period of over a year and a half. Ignorance of technique and careless examination of the chest can alone account for such mistakes. A mistake which Dr. Shortle found deplorably common was the injection of large quantities of gas at long intervals, instead of small quantities at short intervals, a mistake the rectification of which may convert absolute failure to a brilliant success. The last paper in this number deals with Psychotherapy and Tuberculosis. The writers, Dr. Smith Ely Jelliffe and Dr. Elida Evans, introduce a Freudian atmosphere into their lengthy paper, much of which is devoted to the patient's dreams and the interpretation thereof.

NOTES ON HOUSING.

An Emergency Scheme.

OUT of the 500,000 houses budgeted for in the Government scheme only 124 have been completed at the present time. This does not imply that either the Ministry of Health or the local authorities have been idle. Both central and local bodies are alive to the urgency of the need, but neither have yet discovered a sufficient inducement to persuade the builders to undertake the actual work of construction. The cost of building is now 150 per cent. above that of 1914. The official estimate for six or seven years hence is roughly 70 per cent. above pre-war cost. Therefore any private enterprise in building is faced with the prospect of a heavy loss unless the builder can sell his house as soon as it is ready for occupation. He is able to do this kind of work, especially when the buildings are required for the more expensive dwelling houses, for offices, or for cinemas. He will not undertake the contracts tendered by local authorities, presumably because the latter are not able to offer a sufficiently high return for the work. At any rate, the 100 000 houses which Dr. Addison had hoped to see this autumn have not materialised, and at the housing debate on Nov. 21st the Government announced the introduction of emergency measures based upon the recommendations made to them a fortnight ago by Sir Tudor Walters.

A subsidy of £150 is to be paid for every house produced within a certain time and according to plans approved by the Ministry of Health. This subsidy will be paid on all houses constructed for the working classes, whether they are built within or without the State scheme by professional builders or by the future owners of the houses. The Prime Minister in his speech encouraged the hope that crofters or other small landowners might be stimulated to build their own houses. At the same time local authorities are to have their powers extended so as to enable them to put a veto on "luxury building." It is clearly a wise provision that where disease and immorality are being propagated by overcrowding the local building resources should be mobilised in defence of the community. This measure will undoubtedly be of permanent value. The success of the subsidy will depend upon whether it is large enough to tempt the trade, and this can only be determined by experience.

These two proposals are complementary to the scheme of the Ministry of Health, which will still be carried on, though its working out may be more protracted than was at first intended.

The Wooden House at Last.

In the meantime the wooden house, whose claims have been put forward from time to time in these columns, has at last been officially recognised. A model house, built entirely of wood and costing approximately £600, has been approved for erection as a part of the State-aided scheme. The loan on these houses is repayable in 40 years, as against 60 years in the case of brick houses, the cost of which varies from £650 to £770. The wooden house must, therefore, still be regarded as an expensive necessity. We gather from the speech of Sir James Carmichael at the inaugural luncheon of the Timber Exchange on Nov. 5th, that the prospects of obtaining raw material have improved considerably of late.

Professor E. W. Hope, medical officer of health for Liverpool, in his lecture at the Royal Institute of Public Health recently, said that the Liverpool Council had purchased the whole of the army huts at Larkhill Camp, numbering 500, and were converting them into living houses for families.

They were providing a living room, three bedrooms, and a scullery, and were attending to the sanitation of the camp on modern principles. He mentioned that in Liverpool there were some wooden houses in as good condition now as when they were built 30 years ago.

The Whitechapel Exhibition.

Housing exhibitions continue to do useful work in arousing public interest. Following closely upon the successful exhibition held in the Kelvin Hall at Glasgow, a similar experiment has been initiated in connexion with the Garden Cities and Town Planning Association at the Whitechapel Art Gallery. The exhibition was opened on Nov. 4th by Mrs. S. A. Barnett, who referred in her address to the low death-rate—0·30 per 1000—in Letchworth. The doors are open to the public from 12 noon until 9 P.M., and the exhibition of model houses and town planning schemes will continue until the end of the month.

Public Utility Societies.

Some of the schemes submitted by public utility societies are especially enterprising and original. At Swanpool the scheme has been promoted by a large engineering firm which is to supply waste heat and steam from the works. It is proposed to build 3000 houses on 350 acres, all the houses being centrally heated and provided with hot-water supply and electricity for lighting and cooking. This equipment is effected at an extra cost of £65 per cottage, but a saving of £54 is gained by the elimination of chimneys, grates, and other appurtenances of the coal fire.

The Supply of Building Materials.

To encourage private enterprise among the small builders who contract for working-class houses, arrangements have now been made which will enable these small private firms to obtain building materials through the Director of Building Materials Supply, who is already supplying materials required for State-aided schemes. A certificate must first be obtained from the clerk of the local authority or the Housing Commissioner of the Ministry of Health in whose district the houses are to be erected. This certificate must state (*a*) that the material is required for the purpose of erecting or improving houses for the working classes; (*b*) that the houses, development, design, and construction are approved; and (*c*) that the houses proposed to be erected are needed, and will relieve the programme of building by the local authorities. It is anticipated that the above arrangements will enable builders to effect a saving of 5 per cent. on their materials.

Tuberculosis and Housing.

Nearly one-half of the current number of *The British Journal of Tuberculosis* is devoted to a discussion of housing problems. Mr. L. P. Abercrombie deals with the sites for new housing schemes. Where these are to supply labourers for industries which are firmly rooted in unhealthy soil he urges that the sites of dwellings and industry be divorced. The richer classes have already found the home away from business to be satisfactory wherever new industries are springing up. The modern methods of transferring and transforming energy must be taken into account. In many cases it may be possible to start new industries in healthier situations by the exercise of a little forethought.

Dr. A. M. Williamson, the medical officer of health for the city of Edinburgh, claims that statistics have clearly proved the close relationship which exists between tuberculosis and overcrowding. A crusade against tuberculosis cannot be successful while 53 per cent. of the occupied houses in Scotland consist of one and two rooms. Sir George Younger draws attention to the same evil, and points out that of 263 cases of tuberculosis notified in Scotland in the years 1914 and 1915 no less than 159 came from houses of one, two, and three apartments. The old country cottages of Scotland are badly situated and very damp. Through ventilation is impossible, and indeed there is often scarcely any ventilation at all, the windows being fixed with only one small pane that can be opened. That the situation is not very much better in England is shown by Dr. W. Savage. Of the tuberculous cases visited in Somerset between the years 1913 and 1918 more than 40 per cent. were found to be sharing their bedrooms with others, and in less than 10 per cent. of all cases was it found possible to remedy this state of affairs at a later date.

MEDICAL REGISTRATION IN INDIA.

THE WORK OF THE BOMBAY MEDICAL COUNCIL.

UP to the year 1912 no system for the regulation of medical practice existed in any part of India. Even the titles of physician and surgeon were not protected, and any quack could assume the most high-sounding medical titles and practise away without let or hindrance from the law. In 1912 the Government of Bombay set an example to the rest of India by passing the Bombay Medical Registration Act, which made it essential that all practitioners of medicine and surgery should be registered, and granted persons so registered the same privileges accorded by the Medical Act of 1886. The Act admits to the Register in Bombay all persons entitled to registration under the British Act, and in addition a large number of persons with qualifications not recognised in England—viz., assistant surgeons (military and civil), subassistant surgeons (military and civil), licensed medical practitioners, and certain practitioners holding diplomas from foreign universities and corporations. The Act set up a Bombay Medical Council, consisting of seven members nominated by the Governor of Bombay in Council, and five members elected by persons registered under the Act. This Council is presided over by the Surgeon-General with the Government of Bombay. The duties of the Council are entirely judicial and bounded by the letter of the Act. The Act also set up a new licensing body for the Presidency called the College of Physicians and Surgeons of Bombay. This College grants diplomas of two grades—viz., the Membership and the Fellowship. The example of the Bombay Presidency has been closely followed by Bengal and Madras, and similar licensing bodies have been constituted in the other Presidencies. The status of these bodies may be gathered from the fact that in 1916 the India Office forwarded to the General Medical Council a communication from the Government of India recommending that the Membership and Fellowship of the College of Physicians and Surgeons of Bombay should be recognised as registrable qualifications under the Medical Act, 1886. In 1917, however, the General Medical Council replied to the Secretary of State for India that it is not prepared to recognise for registration in the Colonial List of the Medical Register diplomas granted by bodies other than the Indian universities. The Bombay and other provincial medical councils publish annual registers on similar lines to the Medical Register. These registers spread their nets very wide, and in addition to the "Licensed Medical Practitioners" of the Bombay, Madras, and Calcutta Colleges, and the medical schools such as Poona, Agra, Nellore, Cuttack, Royapuram, and Vizagapatam, the names of medical men are found with diplomas from the United States of America and Canada, and even from Zurich and Copenhagen. At the end of 1917 a lay member of the Bombay Legislative Council introduced a Bill which would have greatly weakened the 1912 Act as it proposed to limit the judicial powers of the Council, especially in relation to the practice of Ayurvedic, Unani, and other indigenous methods of medical practice. It further proposed to include in the Bombay Medical Council representatives of the military assistant surgeon and subassistant surgeon class, and those holding college diplomas, and to alter the number of nominated members to five by increasing the number of elected members to seven. This Bill, however, failed to become law. The Bombay Medical Council is a very active body, and its attitude towards the indigenous systems of medicine may be summarised by a resolution passed early last year.

"The Council does not consider the association of a registered medical practitioner with any institution adopting any particular theory of medicine or surgery illegal provided such association does not include any act which would render a registered medical practitioner liable to the discipline of the Council."

The Council has adopted and is issuing the "Warning Notice" of the General Medical Council of the United Kingdom. It has also prepared a Code of Ethical Suggestions for Registered Medical Practitioners which should do much to raise the ethical standard of medical practice in India. It has at a recent session considered the practice of dentistry by unqualified persons, but has not taken any steps

to acquire control over this branch of medical practice. Incorporated in the minutes of the Council for 1918 is a table showing the results of the several professional examinations held in Bombay in 1917, compiled by the registrar from returns supplied by the licensing bodies in pursuance with the rules of the Council.

In a communication dated Oct. 1st the registrar of the Bombay Medical Council sends us a summary of the proceedings of the Council held on Sept. 1st, and states that similar summaries will be issued in future. These summaries will form interesting reports on Indian professional affairs. The reader will in these reports probably find frequent references to Indian medical colleges and Indian medical schools. To the professional mind in this country the terms "medical college" and "medical school" constitute merely a distinction without a difference. To medical men in India they convey a difference in professional status as wide apart as the poles. A college curriculum in India constitutes a full medical curriculum equivalent to that for a university degree. All military assistant surgeons go through a college training of this kind at one of the Presidency towns. A "medical school" curriculum is a modified curriculum carried out at one of the provincial medical schools. Sub-assistant surgeons and licensed medical practitioners have only a school training. There is nothing similar to this division of qualified medical practitioners into two grades in this country, but a very similar distinction between the doctor of medicine and the *vrach* existed before the war in Imperial Russia.

URBAN VITAL STATISTICS.

VITAL STATISTICS OF LONDON DURING OCTOBER, 1919.

In the accompanying table will be found summarised statistics relating to sickness and mortality in the City of London and in each of the metropolitan boroughs. With regard to the notified cases of infectious disease it appears that the number of persons reported to be suffering from one or other of the ten diseases specified in the table was equal to an annual rate of 10·1 per 1000 of the population, estimated at 4,026,901 persons; in the three preceding months the rates had been 5·9, 4·9, and 6·6 per 1000. Among the metropolitan boroughs the lowest rates from these notified diseases were recorded in Kensington, Hammersmith, St. Marylebone, Hampstead, Holborn, and Woolwich; and the highest in Islington, Shoreditch, Bethnal Green, Stepney, Deptford, and Greenwich. The prevalence of scarlet fever showed a marked increase—67 per cent.—over that recorded in the preceding month; this disease was proportionally most prevalent in St. Pancras, Islington, Shoreditch, Southwark, Deptford, and Greenwich. The Metropolitan Asylums Hospitals contained 2293 scarlet fever patients at the end of the month, against 1516, 1409, and 1633 at the end of the three preceding months; the weekly admissions averaged 340, against 236, 184, and 265 in the three preceding months. Diphtheria was considerably more prevalent—38 per cent.—than it had been in the month of September; the greatest proportional prevalence of this disease was recorded last month in Fulham, Hackney, the City of London, Shoreditch, Bethnal Green, Stepney, and Woolwich. The number of diphtheria patients under treatment in the Metropolitan Asylums Hospitals, which had been 1108, 1001, and 1168 at the end of the three preceding months, rose to 1405 at the end of October; the weekly admissions averaged 207, against 153, 125, and 180 in the three preceding months. The prevalence of enteric fever was equal to that in the preceding month; the 55 cases notified last month included 6 in Stepney, 6 in Poplar, 4 in Islington, 4 in Hackney, 4 in Woolwich, 3 in Shoreditch, 3 in Bermondsey, and 3 in Greenwich. Erysipelas was proportionally most prevalent in Stoke Newington, Shoreditch, Bethnal Green, Stepney, Poplar, and Southwark. The 51 cases of puerperal fever notified during the month included 7 in Islington, 6 in Fulham, 4 in Poplar, and 3 each in St. Pancras, Hackney, Southwark, Camberwell, and Woolwich. Of the 8 cases of cerebro-spinal meningitis, 2 belonged to Poplar; while of the 20 cases of poliomyelitis, 5 belonged to Wandsworth, 4 to Lambeth, 2 to Chelsea, and 2 to Deptford.

The mortality statistics in the table relate to the deaths of civilians actually belonging to the several boroughs, the deaths occurring in institutions having been distributed among the boroughs in which the deceased persons had previously resided. During the five weeks ended Nov. 1st the deaths of 5446 London residents were registered, equal to an annual rate of 14·1 per 1000; in the four preceding months the rates had been 9·7, 9·8, 9·9, and 11·2 per 1000. The death-rates last month ranged from 9·7 in the City of London, 10·2 in Woolwich, 11·1 in Lewisham, 12·0 in Paddington, 12·1 in Wandsworth, and 12·2 in St. Marylebone, to 16·7 in Finsbury, 17·7 in Southwark, 18·3 in Shoreditch, 18·7 in Bermondsey, and 21·0 in Holborn. The 5446 deaths from all causes included 528 which were referred to the principal infectious diseases; of these, 34 resulted from measles, 12 from scarlet fever, 91 from diphtheria, 27 from whooping-cough, 16 from enteric fever, and 348 from diarrhœa and enteritis among children under 2 years of age. Among the metropolitan boroughs the lowest death-rates from these diseases were recorded in St. Marylebone, Hampstead, St. Pancras, the City of London, Lewisham, and Woolwich; and the highest in Finsbury, Shoreditch, Bethnal Green, Poplar, Southwark, and Bermondsey. The 34 deaths from measles were 16 fewer than the average number in the corresponding period of the five preceding years; of these, 5 belonged to Southwark, 4 to Camberwell, 4 to Deptford, 3 to Finsbury, 3 to Battersea, and 2 each to St. Pancras, Lambeth, and Greenwich. The 12 fatal cases of scarlet fever were 9 below the average, and included 2 in Wandsworth, 2 in Camberwell, and 2 in Greenwich. The 91 deaths from diphtheria exceeded the average by 11; the greatest proportional

ANALYSIS OF SICKNESS AND MORTALITY STATISTICS IN LONDON DURING OCTOBER, 1919.

(Specially compiled for THE LANCET.)

CITIES AND BOROUGHS.	Estimated civil population, 1917.	Notified Cases of Infectious Disease.											Deaths from Principal Infectious Diseases.								Deaths from all causes.	Death-rate per 1000 living.
		Small-pox.	Scarlet fever.	Diphtheria.*	Typhus fever.	Enteric fever.	Other continued fevers.	Puerperal fever.	Erysipelas.	Cerebro-spinal meningitis.	Poliomyelitis.	Total.	Annual rate per 1000 persons living.	Small-pox.	Measles.	Scarlet fever.	Diphtheria.*	Whooping-cough.	Enteric fever.	Diarrhœa and enteritis (under 2 years).	Total.	Annual rate per 1000 persons living.		
LONDON	**4,026,901**	—	**2179**	**1169**	**1**	**55**	**1**	**51**	**405**	**8**	**20**	**3889**	**10·1**	—	**34**	**12**	**91**	**27**	**16**	**348**	**528**	**1·4**	**5446**	**14·1**
West Districts:																								
Paddington	122,507	—	44	24	—	1	—	2	15	—	—	86	7·3	—	1	—	1	—	—	10	12	1·0	141	12·0
Kensington	151,535	—	35	30	—	2	—	2	9	—	—	78	5·4	—	—	—	1	2	—	18	21	1·4	217	14·9
Hammersmith	114,952	—	18	28	—	2	—	2	10	—	1	61	5·5	—	—	—	—	1	—	9	10	0·9	166	15·1
Fulham	145,186	—	50	60	—	—	—	6	10	—	—	126	9·1	—	—	—	7	—	—	6	13	0·9	179	12·9
Chelsea	57,368	—	27	8	—	—	—	—	1	1	2	39	7·1	—	—	—	1	—	—	5	6	1·1	86	15·6
City of Westminster	122,046	—	51	21	—	1	—	1	10	—	—	84	7·2	—	—	—	2	1	—	9	12	1·0	149	12·7
North Districts:																								
St. Marylebone	92,796	—	21	6	—	—	—	—	6	—	—	33	3·7	—	—	—	—	—	—	5	5	0·6	109	12·2
Hampstead	75,649	—	27	12	—	2	—	—	3	1	1	46	6·3	—	—	1	—	—	—	3	4	0·6	91	12·5
St. Pancras	186,600	—	144	40	—	1	—	3	17	—	—	205	11·5	—	2	—	2	—	—	7	11	0·6	244	13·6
Islington	297,102	—	230	77	—	4	—	7	35	—	—	353	12·4	—	1	1	8	2	1	25	38	1·3	417	14·6
Stoke Newington	47,426	—	16	14	—	1	—	1	6	—	—	38	8·4	—	—	—	2	—	—	2	4	0·9	61	13·4
Hackney	196,598	—	116	81	—	4	—	3	20	1	1	226	12·0	—	—	—	14	1	1	12	28	1·5	272	14·4
Central Districts:																								
Holborn	35,303	—	12	4	—	1	—	—	4	—	—	21	6·2	—	1	—	—	—	1	1	3	0·9	71	21·0
Finsbury	68,011	—	46	18	—	2	—	—	8	1	—	75	11·5	—	3	—	—	—	—	13	16	2·5	109	16·7
City of London	16,138	—	2	8	—	—	—	—	—	—	1	11	7·1	—	—	—	1	—	—	—	1	0·6	15	9·7
East Districts:																								
Shoreditch	89,675	—	82	48	—	3	—	—	13	—	—	146	17·0	—	1	—	3	—	1	21	26	3·0	157	18·3
Bethnal Green	107,352	—	49	116	1	—	—	—	27	—	—	193	18·7	—	1	—	12	—	—	17	30	2·9	150	14·6
Stepney	232,010	—	142	116	—	6	1	2	42	—	—	309	13·9	—	1	1	4	1	2	18	27	1·2	303	13·6
Poplar	143,443	—	57	54	—	6	—	4	31	2	1	155	11·3	—	1	—	2	5	4	15	27	2·0	215	15·6
South Districts:																								
Southwark	167,936	—	130	37	—	1	—	3	23	1	1	196	12·2	—	5	—	6	2	—	28	41	2·5	285	17·7
Bermondsey	107,635	—	36	22	—	3	—	1	10	—	—	72	7·0	—	1	1	2	—	2	22	28	2·7	193	18·7
Lambeth	272,038	—	182	77	—	2	—	—	22	—	4	287	11·0	—	2	—	11	1	—	31	45	1·7	390	15·0
Battersea	150,023	—	75	49	—	1	—	2	15	—	—	122	8·5	—	3	—	2	2	1	9	17	1·2	182	12·7
Wandsworth	300,787	—	163	67	—	2	—	2	23	—	5	262	9·1	—	—	2	3	1	—	17	23	0·8	350	12·1
Camberwell	239,461	—	123	53	—	1	—	3	16	—	1	197	8·6	—	4	2	2	4	—	24	36	1·6	332	14·5
Deptford	103,527	—	90	19	—	1	—	1	10	—	2	123	12·4	—	4	1	—	—	1	10	16	1·6	125	12·6
Greenwich	90,440	—	103	16	—	3	—	2	6	—	—	130	15·0	—	2	2	—	2	1	8	15	1·7	136	15·7
Lewisham	161,405	—	86	32	—	—	—	1	10	—	—	129	8·3	—	—	1	4	1	—	2	8	0·5	172	11·1
Woolwich	131,942	—	22	51	—	4	—	3	3	1	—	84	6·6	—	1	—	1	1	1	1	5	0·4	129	10·2
Port of London	—	—	—	1	—	1	—	—	—	—	—	2	—	—	—	—	—	—	—	—	—	—	—	—

* Including membranous croup.

mortality from this disease occurred in Fulham, Stoke Newington, Hackney, the City of London, Bethnal Green, Southwark, and Lambeth. The 27 fatal cases of whooping-cough were 5 less than the average, and included 5 in Poplar, 4 in Camberwell, and 2 each in Kensington, Islington, Southwark, Battersea, and Greenwich. The 16 deaths from enteric fever exceeded the average by 5; of these, 4 belonged to Poplar, 2 to Stepney, and 2 to Bermondsey. The 348 fatal cases of infantile diarrhœa were 19 in excess of the average number; this disease was proportionally most fatal last month in Kensington, Finsbury, Shoreditch, Bethnal Green, Southwark, Bermondsey, and Lambeth. In conclusion, it may be stated that the aggregate mortality in London in October from these principal infectious diseases was 1·0 per cent. above the average.

(Week ended Nov. 22nd, 1919.)

English and Welsh Towns.—In the 96 English and Welsh towns, with an aggregate civil population estimated at 16,500,000 persons, the annual rate of mortality, which had been 12·9, 13·4, and 13·9 in the three preceding weeks, further rose to 14·8 per 1000. In London, with a population slightly exceeding 4,000,000 persons, the death-rate was 14·7, or 0·5 per 1000 above that recorded in the previous week, while among the remaining towns the rates ranged from 7·1 in Acton and in Lincoln, 7·3 in Enfield, and 9·5 in Gillingham and in Wolverhampton, to 20·7 in Barnsley, 21·0 in Dudley, and 22·2 in Huddersfield. The principal epidemic diseases caused 244 deaths, which corresponded to an annual rate of 0·8 per 1000, and comprised 66 from measles and from diphtheria, 64 from infantile diarrhœa, 25 from whooping-cough, 20 from scarlet fever, and 3 from enteric fever. Measles caused a death-rate of 2·2 in Burnley and in Gateshead, 2·6 in Sunderland, and 4·4 in Barnsley. The 79 deaths from influenza were 5 above the number registered in the previous week, and included 22 in London, 5 in Manchester, and 4 each in West Ham, Portsmouth, and Birmingham. There were 2820 cases of scarlet fever and 1537 of diphtheria under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, against 2678 and 1478 respectively at the end of the previous week. The causes of 45 deaths in the 96 towns were uncertified, of which 8 were registered in Birmingham, and 3 each in London, Liverpool, Southport, Manchester, and South Shields.

Scotch Towns.—In the 16 largest Scotch towns, with an aggregate population estimated at nearly 2,500,000 persons, the annual rate of mortality, which had been 12·4, 13·1, and 12·6 in the three preceding weeks, rose to 18·6 per 1000. The 427 deaths in Glasgow corresponded to an annual rate of 19·9 per 1000, and included 11 from measles, 5 from infantile diarrhœa, 2 each from scarlet fever, whooping-cough, and diphtheria, and 1 from enteric fever. The 120 deaths in Edinburgh were equal to a rate of 18·6 per 1000, and included 5 from diphtheria, and 1 each from measles and infantile diarrhœa.

Irish Towns.—The 138 deaths in Dublin corresponded to an annual rate of 17·8, or 4·3 per 1000 above that recorded in the previous week, and included 5 from infantile diarrhœa, 2 from scarlet fever, and 1 each from measles and diphtheria. The 167 deaths in Belfast were equal to a rate of 21·7 per 1000, and included 9 from measles, 3 from scarlet fever, 2 from diphtheria, and 1 each from enteric fever and infantile diarrhœa.

The Services.

ROYAL NAVAL MEDICAL SERVICE.

To be Surgeon-Lieutenants: J. T. Wylie, F. L. H. MacDowel.

ARMY MEDICAL SERVICE.

Col. A. G. Thompson, C.M.G., D.S.O., is placed on half pay.

ROYAL ARMY MEDICAL CORPS.

Lieut.-Col. E. P. Sewell, C.M.G., D.S.O., relinquishes the temporary rank of Colonel.

Temp. Lieut.-Col. J. Hay (Captain, R.A.M.C., T.F.) relinquishes his temporary commission on re-posting.

Temp. Lieut.-Col. P. B. Giles, C.B. (Colonel, retired, T.F.), relinquishes his temporary commission.

Majors J. du P. Langrishe, D.S.O., T. H. Gibbon, and Temp. Capt. L. G. Brown relinquish the acting rank of Lieutenant-Colonel on ceasing to command Medical Units.

Capt. G. P. Taylor, D.S.O., relinquishes the acting rank of Lieutenant-Colonel.

Major D. G. Marshall, retired Indian Medical Service, is granted the rank of Lieutenant-Colonel on ceasing to be employed.

The undermentioned relinquish the acting rank of Major: Capts. W. E. Tyndall, J. P. Quinn, C. de W. Gibb, J. H. Pendered, Temp. Capts. J. E. H. Roberts, G. T. Cregan.

Capt. A. W. Raymond resigns his commission.

Captains, from Special Reserve, to be Captains: L. M. Routh, C. H. G. Penny.

C. Sullivan, late temporary Captain, to be temporary Captain.

Officers relinquishing their commissions: Temp. Capt. (acting Lieut.-Col.) D. Fletcher (granted the rank of Lieutenant-Colonel). Temporary Captains granted the rank of Major: H. F. Wilson, T. H. Oliver, R. C. Alexander, H. H. L. Ellison. Temporary Captains retaining the rank of Captain: W. McConnell, A. G. Caldwell, S. V. P. Pill, A. McNally, G. T. Symons, B. S. Simmonds, G. A. C. Gordon, E. J. Griffiths, R. T. Taylor, R. H. Rattray, E. Prall, H. J. McCurrick, T. Taylor, G. T. Walker, J. Pryce-Davies, D. M. Livingstone, W. J. B. Lavery, D. McCormack, F. E. Tillyard, J. A. Tippett, C. L. Wigan, R. P. Marshall, J. A. Wellwood, C. J. B. Buchan, A. E. Chisholm, A. L. Candler, A. R. Fuller, S. F. Fouracre, H. W. Drew, F. E. Daunt, G. H. Ensing, W. G. Gordon, F. E. Marshall, A. J. Ireland, J. McClellan, W. M. Thunder, H. L. Pearson; Temp. Lieut. C. R. Kidd (and retains the rank of Lieutenant).

Canadian Army Medical Corps.

Temp. Major (acting Lieut.-Col.) W. J. McAlister to be temporary Lieutenant-Colonel.

Officers retiring in the British Isles: Temp. Major P. D. Saylor; Temp. Capt. G. E. Duncan.

TERRITORIAL FORCE.

Capts. (acting Majors) C. W. J. Brasher and A. Rodger relinquish the acting rank of Major on ceasing to be specially employed.

Capts. L. Beesley and E. L. Forward to be acting Majors whilst specially employed.

1st London Sanitary Company: Capt. (acting Major) E. R. Marle relinquishes the acting rank of Major on vacating appointment of Chief Instructor, Agricultural Wing, Army Science College.

3rd London General Hospital: Capt. E. N. Keys-Wells relinquishes his commission on account of ill-health and retains the rank of Captain.

2nd Northern General Hospital: Capt. (acting Major) A. L. Whitehead relinquishes the acting rank of Major on ceasing to be specially employed.

ROYAL AIR FORCE.

Medical Branch.—Transferred to the unemployed list: Capts. M. J. Whelton, A. W. Weston, L. A. Walker, C. P. C. Sargent, E. D. Granger.

Dental Branch.—Transferred to the unemployed list: Capts. S. G. Smith, F. R. McCambley; Lieuts. G. O. Roper, N. A. Goudge.

THE ROYAL DENTAL HOSPITAL OF LONDON.

ANNUAL DINNER.

THE annual dinner of the staff and past and present students of the Royal Dental Hospital of London was held in the Connaught Rooms, Freemason's Tavern, on Nov. 22nd, when Sir Harry Baldwin presided. There was a good attendance, and after the usual loyal toasts had been honoured the chairman, in proposing the toast of "The Past and Present Students of the Royal Dental Hospital," congratulated all present on their being able to resume this annual event. He referred with pride to the past students who have gratuitously given their services on behalf of the fighting units. It had been arduous and disinterested work, and had opened up a big region of study in dealing with the wounds of the jaw and face. He hoped that, because, happily, the war was over, the cult of jaw surgery would not be allowed to die out. He thought that the outlook for a National Dental Service was favourable, and he trusted that the Ministry of Health would soon determine that unqualified practice should cease. He referred to the proposal that the adjoining site of the hospital, once occupied by Newton's house, should soon be acquired, as the accommodation of the hospital and school was again getting inadequate. They felt the want of beds for cases needing peace and rest after long anæsthesia, and then the treatment of injuries and diseases of the jaw could be provided for. Surgeons would be attached to collaborate with the dental surgeon in carrying out this work. A considerable sum of money would be required for the purpose, and he urged those present and their friends to do all they could to raise the necessary funds. Miss D. A. Grose replied for the present students. She is the winner of the Woodhouse scholarship, and the chairman congratulated the hospital authorities on their decision to admit women students. That was justified, he thought, by the chief scholarship being won by Miss Grose. Mr. T. H. Miller, in a humorous speech, replied for the past students. The Dean of the school, Mr. W. H. Dolamore, responded for the school, and after reminding his audience of the good pioneer work done by Morton Smale and J. Francis Pink, emphasised the importance of carrying out the proposed extensions mentioned by the chairman. Mr. H. Stobie proposed the health of "The Visitors," to which Sir George Makins replied, referring the audience to the cordial relationship which existed between the Royal College of Surgeons of England and the dental profession. He knew that good feeling would remain, for he and his colleagues were well aware of the high aims of the dental profession. He dwelt upon the extent to which the increased advances in science would put pressure on the student. The final toast, that of "The Chairman," was proposed by Mr. D. P. Gabell, which met with enthusiastic response. A good programme of music and recitals was provided.

Correspondence.

"Audi alteram partem."

SOCIETY FOR THE PREVENTION OF VENEREAL DISEASE.

To the Editor of THE LANCET.

SIR,—In view of the ravages and sufferings inflicted upon innocent persons, often women and children, by venereal diseases, and also of the fact that such diseases are very easily prevented, this society appeals to the public for donations in support of its policy of ensuring the adoption of preventive measures in the only way which offers any real hope of efficiently combating this terrible scourge. Immediate self-disinfection, requiring no special skill or training, applied at the earliest possible moment, is the method advocated by this society, and for this purpose the necessary disinfectants must be immediately available.

The aims of this society are to acquaint the general public with these means, and to issue instructions for their proper use. The public are invited to become members of the society, for which the annual subscription is £1 1*s*., and whether they become members or not, all who are interested are invited to send a stamped, addressed envelope, when our leaflet giving the necessary instructions will be sent in return, free of charge. Members of public bodies and representatives of works and clubs can obtain a supply for distribution on making application.

Inquiries, donations, and subscriptions should be sent to the honorary secretary, Society for the Prevention of Venereal Disease, 143, Harley-street, London, W. 1.

(Sgd.) WILLOUGHBY DE BROKE,
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Honorary Secretary.

Nov. 21st, 1919.

THE BRITISH FEDERATION OF MEDICAL AND ALLIED SOCIETIES

[LATE MEDICAL PARLIAMENTARY COMMITTEE].

To the Editor of THE LANCET.

SIR,—May we direct your readers' attention to the fact that a medical man is now contesting the by-election in the St. Albans constituency? In accordance with the policy of the Federation to support all approved medical candidates, irrespective of party, our executive is assisting Lieutenant-Colonel F. E. Fremantle, M.B., F.R.C.S., R.A.M.C. (T.F.), in every possible way, in what is likely to be a short but sharp fight. Colonel Fremantle has for many years been county medical officer of health, and would seem well qualified to represent the electors at a time when health matters and the reconstruction of the medical services make it more than ever necessary to increase medical representation in the House of Commons.

An individual appeal has been made to the medical men in the constituency, to which this letter directs attention, and also through the constituent organisations of the Federation to all nurses, pharmacists, and midwives in the area. All medical men within reasonable distance would greatly assist by lending their cars on the day of the poll or during the "campaign." A. E. Cockerell, Esq., 17, St. Peter's-street, St. Albans, should be communicated with by those able to help.—We are, Sirs, yours faithfully,

CHARLES BUTTAR, M.D.,
Hon. Secretary.
N. HOWARD MUMMERY, M.R.C.S., Lt.-Col.,
General secretary.

5, Vere-street, W. 1, Nov. 24th, 1919.

IRISH PUBLIC HEALTH COUNCIL.

To the Editor of THE LANCET.

SIR,—May I ask a "Correspondent" (THE LANCET, Nov. 22nd, 1919, p. 947) to answer the following queries, any references to which, in his reply to my letter of Nov. 1st, are most carefully avoided.

1. How can the medical profession in Ireland be asked to carry out any public health scheme suggested by a body on which they have no members elected, on modern democratic principles, by themselves, and which they cannot regard as in any way representative of the whole country or indeed as acquainted practically with the wants, from a public health point of view, of the whole of Ireland?

2. Was the "Irish Medical Committee," to which he refers, asked by the medical profession as a whole to suggest any names to the Chief Secretary, as Health Minister for Ireland, for nomination by Him to the Irish Public Health Council, and, if not, did that committee, before submitting them, bring their names before the whole profession for their approval?

3. When the names were, as a "Correspondent" says, nominated by the "Irish Medical Committee," who prevented the Chief Secretary from accepting three out of the number and only taking two? How would it do for any medical body or committee in Ireland to elect a Direct Representative on the Medical Council and not the profession as a body?

4. Is an Irish Health Council representative of the whole of the medical profession in Ireland, on which every one of the medical members is a Dublin resident, and three of whom are officials and not in active practice? Are the medical men of Cork, Belfast, Limerick, Londonderry, and the whole of rural Ireland a set of fools to be ignored? Is Dublin to be the one Irish city to have all the medical representation on a Public Health Council which is to attempt to legislate on medical matters for the *whole* of Ireland? Would such a state of affairs be tolerated by the medical profession of England or of Scotland that no doctor was to be considered fit to be a member of an English or a Scotch Public Health Council unless he was a resident in London or in Edinburgh?

5. What does a "Correspondent" think of the utter mess the advisers of the Chief Secretary for Ireland (the Health Minister) in Dublin have led him into on the housing question, as evidenced by the speeches of two Irish Members, Captain Redmond and Mr. Moles, in the House of Commons on Sept. 21st? The day is indeed gone when any Dublin officials, or any body (one or more) of Dublin practitioners, can assume to guide a Minister of the Crown on public health questions, unless they are practically acquainted with such matters, and unless they know, by personal consultation, the opinions of those who live outside Dublin. Both as to the Public Health Council and the Housing Scheme, had Mr. Macpherson consulted the opinions of those who know the wants, the limitations, and the difficulties of the whole of Ireland, and not trusted to officials—with a narrow horizon—and to others who think their residence in the capital of Ireland makes them omniscient, he could have kept himself from such deplorable mistakes.

I am, Sir, yours faithfully,

Nov. 22nd, 1919. IRISH PRACTITIONER.

THE ORIGIN OF QUINSY.

To the Editor of THE LANCET.

SIR,—For a not altogether inconsiderable period of time a quinsy has been termed a peritonsillar abscess; in theory this term seemed quite satisfactory for pus was found in the tissues deep or external to the tonsil. Complete excision of the tonsil, therefore, should entirely obviate all risk of quinsy. The question is, Does it? As no collection of pus can be formed around a tonsil which is no longer there, it is

absurd to speak of peritonsillar abscess; but to say that there can be no quinsy is quite a different thing! My experience seems to show that, on the contrary, quinsy can and does occur after enucleation of tonsils. This indicates that we should not now be inclined to accept the simple pathological statement given above for all cases of quinsy.

My views were altered after the second of the two cases to be narrated; after hearing of the first I was only certain that no peritonsillar abscess could have occurred, and as I then considered this condition to be synonymous with quinsy I said a quinsy could not have occurred, a remark which, in view of my present opinion, appears to me to have been erroneous. The first case was that of a boy whose tonsils I had removed completely, whose father was most annoyed at the boy having had, as above mentioned, a quinsy, and I had the boy up and examined him and was quite satisfied that the tonsil had been efficiently removed. The second case I saw with the late Dr. J. Cahill; it was that of a boy whose tonsils we had dissected out and who had developed an inflammatory swelling in the throat exactly like a quinsy. This required incision, and behaved just like a quinsy. It seems, therefore, probable that the site of disease in quinsy lies not in the peritonsillar tissues, but that a quinsy is a suppurating deep cervical gland. This also explains the variations which occur in the seat of suppuration in quinsy. It is, in fact, a lateral retropharyngeal abscess.

I am, Sir, yours faithfully,

Cavendish-place, W., Nov. 20th, 1919. R. LAKE.

"TUBERCULOUS MENINGITIS AND LETHARGIC ENCEPHALITIS."

To the Editor of THE LANCET.

SIR,—Your annotation under the above heading in THE LANCET of Nov. 22nd came to my notice the day after the death of a patient of mine, in whose case there was the same difficulty of diagnosis, and in this connexion it seems worthy of record.

S. G., a boy, aged 7, had for some months previous to onset been noticed by his mother to get thinner and change in temper, becoming irritable and wilful. He had a fall on his head a week before onset of his illness, which was sudden, with persistent vomiting, headache, and pyrexia. I diagnosed tuberculous meningitis on the following symptoms: Vomiting, headache, complaint of pain in the neck, and evidence of slight stiffness of the muscles of the neck, marked Kernig sign, tache cerebrale, which he showed, together with the fact that his mother is tuberculous. On the fifth day he ceased vomiting and became drowsy; this lethargy deepened until he could not be roused. He now became incontinent. On the seventh day the eyes began to look swollen, there was temporary convergent strabismus and rolling movements of the eyes.

I now suspected that the case was one of encephalitis lethargica. Lumbar puncture produced a clear fluid under considerable pressure, which the pathologist reported to be "almost clear, with granular deposit on centrifugalising. No excess of lymphocytes seen; no polymorphonuclear leucocytes. Deposit consisted of Gram-negative bacilli, presumably due to contamination." Dorsal decubitus with hands behind the head was the usual attitude. On the ninth day slight weakness of left levator palpebræ was noticeable, and ptosis was complete on the following day. Sweating was very profuse and a marked feature throughout. The pupils, at first widely dilated and equal, later became unequal, and before death became pinpoint. The pulse during the first week was remarkably regular at 80; during the second and third week it steadily increased in frequency. The temperature varied little from 100°-101° throughout.

The ultimate diagnosis was based on the lethargy, ocular symptoms, profuse perspirations, absence of head-retraction and of severe headache, together with the negative findings in the cerebro-spinal fluid.

I am, Sir, yours faithfully,

Cliftonville, Margate, Nov. 22nd, 1919. HAROLD W. PARROTT.

SPIRITS FOR INFLUENZA.

To the Editor of THE LANCET.

SIR,—It appears from the Parliamentary Intelligence in THE LANCET of Nov. 22nd that Captain O'Grady asked the Prime Minister "whether he was aware that potent doses of spirits were the best prophylactic against influenza, and that many people perished last winter for the want of supplies." Mr. Bonar Law's answer, assuming your report gives it in full, took no note of these extraordinary statements, but mentioned that the question of the supply of whisky was under consideration; he might thus be taken as giving tacit consent to an outrageous suggestio falsi.

Might we not ask, in the interest of truth and public welfare, that similar false suggestions should not be allowed to pass and be published unchallenged? For what does the Minister of Public Health exist?

I am, Sir, yours faithfully,

St. Just, Tarring, Nov. 25th, 1919. SIDNEY DAVIES.

THE ÆTIOLOGY OF INFLUENZA.

To the Editor of THE LANCET.

SIR,—It was with great interest that I read Dr. G. E. Beaumont's article on the Ætiology of Influenza in THE LANCET of August 9th. During microscopic examination of the sputa of patients suffering from influenzal pneumonia I have noticed, in the great majority of cases, the presence of long threads resembling filaments of anthrax bacilli, but measuring only one-half to one-third of the latter in thickness. Some of these filaments were homogeneous, some were segmented and had the appearance of chains of strepto-bacilli, and some, again, showed bipolar staining and resembled long chains of diplococci. But my mind was so much mesmerised by the so-called Pfeiffer's bacillus that I paid no attention to these forms and put them down to accident or artefact.

There is at present in my wards a sporadic case of typical influenzal broncho-pneumonia, whose sputum collected direct from mouth into a sterile Petri dish showed under the microscope not only the filaments described above, but also coccal clusters, tetrads, and mulberry masses, as described by Dr. Beaumont. These organisms are found more abundantly in the sputum than in the blood of patients; and subculture from the blood of infected cases has not been very successful. In all probability the organisms present in the blood are not alive, but are merely the dead carcasses of the parasite. Therefore it seems reasonable to presume that there is some substance in lung tissue which promotes or is conducive to the growth of this organism. I therefore venture to suggest that an agar medium containing different proportions of an aqueous extract of lung tissue—preferably human—should be tried to subculture this organism.

I regret that I have neither the time nor the convenience in this out-of-the way place to do this, but I hope that Dr. Beaumont will prove that this pleomorphic mycotic organism conforms to the postulates of Koch.

I am Sir, yours faithfully,

S. SUBBA RAE B.A., M.B., M.R.C.S., D.P.H.,

Shimoga, Mysore Province, South India. Civil Surgeon.

PENSION SCHEME FOR PANEL PRACTITIONERS.

To the Editor of THE LANCET.

SIR,—The committee of the Medical Sickness Society, at their meeting on Nov. 21st, had brought to their notice the Circular Letter No. 157 from the Panel Committee, County of London, dealing with the proposed formation of an insurance society for panel practitioners for the purpose of providing them with pensions, life assurances, &c.

The Medical Sickness Annuity and Life Assurance Society was founded in 1884 by medical men for medical men only, has invested funds of £300,000, and has had 35 years' experience in dealing with the profession on insurance matters, and it is felt that a fresh company is quite unnecessary. The society is mutual and registered under the Friendly Societies Act, but, as is known to all its members, is now in process of being turned into a mutual company under the Assurance Companies Act, so as to enable it to work unhampered by Friendly Society regulations and to give greater scope for the requirements of the profession generally.

Accordingly, the committee ask that these facts should be widely known before any decision is made which might in any way be detrimental to the existing Medical Sickness, Annuity, and Life Assurance Society.

I am, Sir, yours faithfully,

W. KNOWSLEY SIBLEY,

Vice-Chairman and Acting Chairman at above Meeting.

300, High Holborn, London, W.C., Nov. 22nd, 1919.

THE CALL OF THE ALPS.

To the Editor of THE LANCET.

SIR,—We observe that in your issue of Nov. 8th you quote official returns in disproof of the statement contained in our letter of October that "we are witnessing a veritable German exodus from Davos." Yet that statement is true. Your comparison of the numbers of visitors for two successive weeks affords no just criterion of a process lasting months. If for brevity's sake any two sets of figures are to be selected they should be the present returns and those for the same date last year, in order to eliminate the seasonal factor in fluctuation. There are now in Davos and neighbourhood in all 906 German visitors as against 2500 in November, 1918. Further, the decrease has been on the whole continuous, and that at a time of year when new arrivals were formerly numerous. It may be added in passing that the English have, on the contrary, just doubled their number.

We have reason to know that the general opinion of those interested differs widely from that expressed in your article in attaching great importance to this point, and we therefore ask you to find space for this reply to your criticism.

We are, Sir, yours faithfully,

W. G. LOCKETT,
British Vice-Consul.
Davos, Nov. 12th, 1919. ARNOLD F. BILL, M.D.

*** Dr. Bill has sent us a certified record of the number of visitors in the Davos Valley for the last 14 months, which, in the main, bears out his contention. Of the 2500 German visitors in November, 1919, 1000 or more were undergoing internment and did not, for some reason, figure in the usual return. The latest reported number of German visitors given as 867 includes 200 interned men, most of them patients in the Deutsches Kriegerhaus at the mouth of the Dischmathal, as well as 140 or 150 patients in the Deutsche Heilstätte at Wolfgang. Dr. Bill adds: "As we now see him, the average German is a very mild edition of his former self, and the change in the atmosphere of Davos is even more noteworthy than the figures suggest."—ED. L.

PORTRAITS OF ANDREAS VESALIUS.

To the Editor of THE LANCET.

SIR,—Being engaged upon a work on the Iconography of Andreas Vesalius, I should be grateful if you will allow me to appeal to those of your readers with whom I have not already corresponded on the subject and who own, or know of, any such portraits, painted or sculptured, to have the kindness to communicate with me. It is believed that certain of the portraits which at present are regarded as untraceable are to be found in institutions, in universities, medical schools, and the like, or in semi-public or private galleries. I may add that the book, which is to contain all the accessible portraits of the Father of Modern Anatomy, will be worthily produced under the authority, and with the support, of the "Annals of Medical History."

I am, Sir, yours faithfully,

M. H. SPIELMANN.

The Athenæum, Pall Mall, S.W., Nov. 26th, 1919.

MENTALLY DERANGED SOLDIERS IN PAUPER ASYLUMS.

To the Editor of THE LANCET.

SIR,—The Parliamentary answer on this subject, reported on p. 950 of your issue of the 22nd, is misleading. The fact that discharged soldiers who become insane are treated as private patients in asylums is, of course, all to the good, but, nevertheless, to gain admission to the asylum the unfortunate man has to be certified by the Poor-law medical officer, and goes in as a pauper. Transferring him to the private patient's side afterwards does not therefore meet the case.

Is it not possible to amend the law so that an insane pensioner can be treated as an insane serving soldier—i.e., be admitted (without certification) for observation, certification only being resorted to later if found to be necessary?

I am, Sir, yours faithfully,

Nov. 24th, 1919. MEDICAL SUPERINTENDENT.

THE LATE SIR T. LAUDER BRUNTON.

To the Editor of THE LANCET.

SIR,—In response to requests I propose to publish shortly a memoir of the late Sir T. Lauder Brunton. All profits from the sale of this book will be given to the sustentation fund of St. Bartholomew's Hospital. I should be very grateful for any communications from old friends of his, or for any letters of interest written by him. These would be carefully preserved and returned.

I am, Sir, yours faithfully,

7, Poole-road, Bournemouth. THOMAS BODLEY SCOTT.

Medical News.

UNIVERSITY OF LONDON.—At a meeting of the Senate held on Nov. 19th Sir Cooper Perry was appointed principal officer, an appointment which has been in abeyance since 1915. A resolution was passed expressing appreciation of the Goldsmiths' Company in presenting £15,000 National War Bonds to the London Hospital Medical College for the endowment of a University Chair of Bacteriology, and intimation was received of a bequest of about £3000 under the will of Mr. T. S. Hughes for the encouragement of original medical research in the University. It was also announced that the Graham Legacy Committee had made their first award of the gold medal to Dr. Charles Bolton, F.R.S., in recognition of original work in experimental pathology which he had conducted at the medical school of University College Hospital.

At examinations held recently the following candidates were successful:—

THIRD (M.B., B.S.) EXAMINATION FOR MEDICAL DEGREES.

Gerald Victor Wright Anderson, Univ. Coll. Hosp.; Owen Deane Brownfield, St. Thomas's Hosp.; Michael Waldo Boone Bulman, London Hosp.; Charles Hugh Colclough Byrne, St. Thomas's Hosp.; Alix Jeanne Churchill, London Sch. of Med. for Women and St. George's Hosp.; Simeon Moses Cohen, St. Bart.'s Hosp.; Rolf Creasy, Guy's Hosp.; Nora Annie Crow, London Sch. of Med. for Women; Mary Day (honours, distinguished in forensic medicine and midwifery), St. Mary's Hosp.; Florence Marjory Edwards, London Sch. of Med for Women; Reginald Stafford Foss, St. Thomas's Hosp.; Pinkus Joseph Freilich and John Norman Glaister, Univ. Coll. Hosp.; St. George Bernard Delisle Gray, Guy's Hosp.; Hubert Oliver Gunewardene, King's Coll. Hosp.; Cyril Edward Harrison, Middlesex Hosp.; Henry Nevill Hornibrook, St. Bart.'s Hosp.; Jack Joffe (honours, distinguished in pathology and surgery), Guy's Hosp.; Shankar Ramchandra Jogiekar, Univ. Coll. Hosp.; Rhys Trevor Jones (honours, distinguished in medicine, forensic medicine, and surgery, University medal), St. George's Hosp.; Samuel Walter Maslen Jones, Middlesex Hosp.; Vivian Emrys Jones, Liverpool Univ.; Vasant Ramji Khanolkar, Univ. Coll. Hosp.; Hyman Jacob Levy, Univ. Coll., Cardiff, and St. Bart.'s Hosp.; Naunton Morgan Lewis, Westminster Hosp.; Ronald Guy Lyster, St. Bart.'s Hosp.; Charles Dundas Maitland, St. Thomas's Hosp.; Framroz Nanabhoy Moos, Univ. Coll. Hosp. and Grant Med Coll., Bombay; Marie Mathilda Alice Moralt, London Sch. of Med. for Women; Edith Mary Ponsonby Morris, St. Mary's Hosp.; Manek Jamshedji Panthaky, King's Coll. Hosp.; John Ernest Pearce, St. Bart.'s Hosp.; George Stuart Bain Philip, Charing Cross Hosp.; Frank Portas (honours, distinguished in pathology), Westminster Hosp.; Dorothy Priestley Priestley, Leeds Univ.; Mary Millicent Prior, St. Mary's Hosp.; William Arthur Richards, Charing Cross Hosp.; John Francis Ryan, St. Thomas's Hosp.; Emmanuel Prinski Scott, London Hosp.; Evelyn Dennis Scott, Guy's Hosp.; George Harold Sims, St. Thomas's Hosp.; Herbert William Southgate, Guy's Hosp.; Frances Minnie Spickett, London Sch. of Med. for Women; Raymund Theron, London Hosp.; Austin Darley Wall, St. Bart.'s Hosp.; Alfred Basil Keith Watkins (honours, distinguished in medicine and surgery), London Hosp; Cyril James Berkeley Way, Middlesex Hosp.; John Woollaston Wayte, St. Thomas's Hosp.; William Ronald White-Cooper, St. Bart.'s Hosp.; Alfred Williams Walker, Birmingham Univ.; and Arthur Graham Winter, London Hosp.

The following candidates have passed in one of the two groups of subjects:—

Group I.—David William Jabez Andrews, Middlesex Hosp.; Mary Rushton Barkas, London Sch. of Med. for Women and St. Mary's Hosp.; William Wallace King Brown, St. Thomas's Hosp.; Egbert Aubrey Lennox Crichlow, King's Coll. Hosp.; William Edward Kyte Coles, Univ. Coll. Hosp.; Joyce Emily Craggs, St. Mary's Hosp.; Ernest Ivon Davies, Charing Cross Hosp.; Elizabeth Cowper Eaves, Sheffield Univ.; Harold Ellis and Thomas Leslie Ellis, St. George's Hosp.; Ronald Kelson Ford, London Hosp.; Graydon Oscar Hume, Guy's Hosp.; Norah Dorothy Pinkerton, London Sch. of Med. for Women; Walter Ernest Karl Adolf Quitmann, Univ. Coll. Hosp.; John Augustus Waring Robinson, King's Coll. Hosp.; and Beriah Melbourne Gwynne Thomas, Univ. Coll., Cardiff, and St. Bart.'s Hosp

Group II.—Christian Frederick Beyers, St. Bart.'s Hosp.; Ella Marianne Britten, St. George's Hosp.; Jacob Brodetsky, London Hosp.; John Ralph Dingley, Univ. Coll. Hosp; Abel Evans, Charing Cross Hosp; Algernon Sanders Green, Univ. Coll. Hosp.; Cecil Edward Eede Herington and Christopher Langton Hewer, St. Bart.'s Hosp.; Eric Clark Hinde, Guy's Hosp.; Oscar Hyam Hyman, St. Thomas's Hosp.; George Edwin Kidman, Guy's Hosp.;

Reginald Heber Leigh, King's Coll. Hosp.; Sidney Simon Lindsay, St. Thomas's Hosp.; Kenneth McFadyean, Univ. Coll. Hosp.; Humphrey Ingilby Marriner, St. Thomas's Hosp.; Henry Elliott Reburn, King's Coll. Hosp.; William Thomas, St. Thomas's Hosp.; Morris John Theodore Wallis, Guy's Hosp.; John Prichard Williams, Westminster Hosp. and Univ. Coll., Cardiff.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—At the special and ordinary Primary Examination for the Fellowship of the College, held from Nov. 5th to 14th, 141 candidates presented themselves, of whom 67 (including 9 women) were approved and 74 were rejected. The following are the names of the successful candidates:—

W. Anderson, Aberdeen and Edinburgh Univs.; Helen Rosaline Ashton, London Sch. of Med. for Women; E. M. Atkinson, St. Bart.'s Hosp.; J. T. Blackburn, Leeds Univ.; L. R. Broster, Oxford Univ. and Guy's Hosp.; Edith Kathleen Budden, London Sch. of Med. for Women; N. St. J. G. D. Buxton, Univ. Coll. Hosp.; H. W. B. Cairns, Adelaide Univ. and Middlesex Hosp.; C. L. Chapman, Sydney Univ. and Univ. Coll. Hosp.; R. M. Clarke, Melbourne Univ.; J. H. Cobb, Sheffield Univ. and St. Bart.'s Hosp.; A. J. Cokkinis, St. Mary's Hosp.; Gwendolen Coode Cotton, London Sch. of Med. for Women; E. A. Crooke, Oxford Univ. and St. Bart.'s Hosp.; D. I. Currie, Leeds Univ.; P. D. Debono, Malta and St. Bart.'s Hosp.; H. R. Dew, Melbourne Univ. and St. Mary's Hosp.; L. A. Dingley, Univ. Coll. Hosp.; R. Fowler, Melbourne Univ. and St. Mary's Hosp.; Hilda Margaret Garlick, London Sch. of Med. for Women; Satyapriya Ghosh, Calcutta and London Sch. of Med. for Women; J. F. Gill, Aberdeen Univ. and St. Bart.'s Hosp.; C. L. Gimblett, Cambridge Univ. and St. Thomas's Hosp.; Marie Louise Pauline Goetze, London Sch. of Med. for Women; W. A. Hewitson, Durham Univ. and King's Coll.; F. C. Hunt, London Hosp.; Lily Graham Iliff, London Sch. of Med. for Women; L. M. Ingle, Cambridge Univ. and London Hosp.; J. A. Jenkins, Otago Univ. and Middlesex Hosp.; Gladys Hilda Emma Harriette Jane Jones, London Sch. of Med. for Women and London Hosp.; J. M. Keegan, Cork and St. Mary's Hosp.; T. P. Kilner, Manchester Univ.; D. Krestin, London Hosp.; C. Lambrinudi, Cambridge Univ. and Guy's Hosp.; J. V. Landau, St. Bart.'s Hosp.; B. L. Laver, Guy's Hosp.; R. J. M. Love, London Hosp.; K. MacCormick, Otago Univ. and Univ. Coll.; A. L. McGregor, Edinburgh Univ.; W. MacMurray, Glasgow Univ.; R. P. S. Mason, Middlesex Hosp.; Isabella Mary Mears, Edinburgh Univ.; C. H. Medlock, Guy's Hosp.; J. M. D. Mitchell, Aberdeen Univ. and King's Coll.; W. R. M. Mitchell, St. Bart.'s Hosp.; J. G. B. Muir, Middlesex Hosp.; T. P. Noble, Edinburgh Univ. and Univ. Coll.; H. C. W. Nuttall, Liverpool Univ.; C. A. Ralson, Middlesex Hosp. and Birmingam Univ.; C. S. L. Roberts, Guy's Hosp.; A. R. Roche, Cambridge Univ. and St. Bart.'s Hosp.; J. J. M. Shaw, Edinburgh Univ.; W. Shaw, Cambridge Univ. and St. Bart.'s Hosp.; J. L. Shellshear, Sydney Univ. and Univ. Coll.; L. R. Shore, Cambridge Univ. and St. Bart.'s Hosp.; A. I. Silverman, Middlesex Hosp.; H. J. D. Smythe, Bristol Univ.; L. A. Spedding, Otago Univ. and Middlesex Hosp.; H. E. R. Stephens, Manchester Univ. and London Hosp.; H. C. Trumble, Melbourne Univ. and Middlesex Hosp.; N. S. B. Vinter and H. M. Wharry, St. Bart.'s Hosp.; F. W. Widgery, Guy's Hosp.; N. J. Wigram, Sheffield Univ. and Middlesex Hosp.; E. A. Wilson, Middlesex Hosp.; H. H. Wollard, Melbourne Univ.; and H. W. S. Wright, Univ. Coll. Hosp.

ON the occasion of his retirement from the office of medical officer of health to the Metropolitan Borough of Bethnal Green, after 44 years' service in the area, Dr. George Paddock Bate, J.P., has received the congratulation of the Borough Council in the form of a resolution engrossed on vellum.

AT a meeting of the University Court of the University of Manchester held recently an appeal for funds was issued, to obtain a sum certainly not less than £250,000. Since 1913 the number of students had increased by 1000, and now totalled 2550. Students of medicine alone had increased from 270 to 700. The immediate result is overcrowding of all departments, the medical school and the chemical departments being specially incommoded. The receipts for the year were £88,000, as against £73,000 in the previous year; the expenditure £89,000, as against £73,000. At the present time only four local authorities, in addition to Manchester and Salford, give any contributions to the University funds.

ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH.—At a meeting of the College held on Nov. 4th, Sir Robert Philip, the President, in the chair, the following, among others, were elected Honorary Fellows of the College, in recognition of their distinguished services during the war: Mr. Henry P. Davison, chairman of the American Red Cross; Professor A. Laveran, of Paris; Professor Marchiafava, vice-president of the Italian Red Cross; Professor E. Roux, director of the Institut Pasteur in Paris; Sir Arthur Stanley, chairman of the Joint War Committee of the British Red Cross; and Professor William H. Welch, director of the School of Hygiene and Public Health in Johns Hopkins University, Baltimore.

On a ballot the following members of the College were admitted to the Fellowship:—Dr. T. A. Ross, Ventnor; and Mr. R. B. Johnston, Penrith. The following were admitted to the Membership of the College after examination:—Dr. J. L. Boyd, Dr. C. H. Tewsley, Dr. R. C. Robertson, Dr. J. B. McDougall, and Dr. L. B. Cox.

The Morison Lectures for 1920 will be delivered in March by Lieutenant-Colonel Richard G. Rows, M.D.

ROYAL INSTITUTION OF GREAT BRITAIN.—A general meeting of the members will be held at Albemarle-street, Piccadilly, London, W. 1, on Monday, Dec. 1st, at 5 P.M.

Sir William T. Lister, K.C.M.G., has been elected a surgeon to the Royal London Ophthalmic Hospital (Moorfields Eye Hospital).

THE Countess of Athlone (H.R.H. The Princess Alice) will open a hostel in connexion with the National Children Adoption Association at Tower Cressy, Campden Hill, London, W., on Monday next, Dec. 1st, at 3.30 P.M.

A THIRD edition of Sir George Newman's Memorandum, "An Outline of the Practice of Preventive Medicine" has been printed and copies are available through the usual channels.

HONORARY DEGREES AT LEEDS UNIVERSITY.—At a Congregation of Leeds University on Nov. 20th the honorary degree of D.Sc. was conferred upon Surgeon-General Sir Alfred Keogh and Sir Almroth Wright.

THE annual dinner of the Bristol Medical School, which has been in abeyance during the war, will be held on Thursday next, Dec. 4th, at the Royal Hotel, Bristol. Mr. R. G. P. Lansdown will be the President, and Sir Anthony Bowlby the guest of the evening.

A COTTAGE HOSPITAL FOR NEWQUAY.—At a public meeting recently held at Newquay, Cornwall, it was decided to erect a cottage hospital as a war memorial. A site has been promised, and several donations have been received. The estimated cost of the building is stated as £5000, and that of maintenance about £500 per annum.

THE TUBERCULOSIS SOCIETY.—A joint meeting of the society and the Association of School Medical Officers will be held at the rooms of the Medical Society, 11, Chandos-street, London, on Monday, Dec. 1st, at 8 P.M., when Dr. J. Kerr will open a discussion on the Various Aspects of Tuberculosis in Relation to School Life. Dr. Clive Riviere, Dr. F. S. Langmead, Dr. F. C. Shrubsall, and Dr. F. Kay Menzies are expected to take part in the discussion.

HAYWARDS HEATH HOSPITAL.—On Nov. 22nd H.R.H. Princess Alice, Countess of Athlone, with whom was Lord Athlone, paid a visit to the King Edward VII. and Eliot Memorial Cottage Hospital at Haywards Health, and opened the X ray room given by Miss Elizabeth Short "in memory of the late W. E. Davis, Esq., of Hillcrest, Paddock Hall-road, Haywards Heath," and the electrical massage and treatment room "in memory of Reginald C. Hind, Second Lieutenant, R.F.A., killed in France, February 8th, 1918. Given by his mother." It is proposed to convert the matron's and nurses' quarters into a children's ward and to build a nurses' home, and the scheme was warmly approved of by Lord Athlone, who spoke of the institution as an ideal little hospital. During the war period over 1000 soldiers were treated, not one death occurring among them.

THE Yarrow Convalescent Home for Children, Broadstairs, was opened 24 years ago, and Broadstairs was selected as a very suitable place, because it is in a notoriously healthy district with a large amount of bright sunshine, according to meteorological tables, as well as experience. The home accommodates 100 children—50 boys and 50 girls—the boys' age being from 4 to 12 years, and girls' from 4 to 14. These age limits can be extended for cases found by the medical attendant to be serious. There is facility for the treatment of such cases in what may be looked upon rather as a hospital than a convalescent home. There is provision for surgical operations and an X ray apparatus. A physician, who resides at Broadstairs, pays daily visits to the home, and medical men attached to an honorary staff visit when necessity requires it.

At the outbreak of war, owing to the position of the home in case of air raids or bombardment, the children were disbanded, and the committee of management placed the home at the disposal of the War Office authorities for the reception of sick and wounded soldiers. The home was used as a military hospital for nearly two years, and run by the committee of management. Later the Canadian military authorities took it over, working it entirely by the Canadian staff and at their own expense. It continued in the hands of the Canadians, who used it for limbless convalescent men waiting to return to Canada, up to June, 1917, when, in consequence of the frequent air raids and bombardments, the home was finally vacated, remaining closed until August of this year. Now it has been reopened for its original purpose, but the charge, which was 8s. per week per child prior to the war, has been raised to 15s. a week. The class of patients catered for is the children of middle- and upper middle-class families whose parents, in the existing high prices, cannot meet the cost of medical attendance and invalid treatment.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

NURSES REGISTRATION (No. 2) BILL.

THE text of the Bill as read a second time in the House of Commons on Nov. 18th is substantially as follows:—

A General Nursing Council.

Clause 1 sets up a General Nursing Council, the constitution of which is set out in a schedule. The Council on its first constitution is to consist of 25 members, composed of two persons, who shall not be registered medical practitioners, or nurses, or persons concerned with the regular direction or provision of the services of nurses, appointed by the Privy Council; two persons appointed by the Board of Education; five persons appointed by the Minister of Health, after consultation with persons and bodies having special knowledge and experience of training schools for nurses, of the work of matrons of hospitals, of general and special nursing services, and of general and special medical practice; 16 persons, who are or have at some time been nurses actually engaged in rendering services in direct connexion with the nursing of the sick, appointed by the Minister of Health after consultation with the Central Committee for the State Registration of Nurses, the College of Nursing, the Royal British Nurses Association, and such other associations or organised bodies of nurses or matrons as represent to the Minister that they desire to be consulted in the matter. The schedule further provides that the first members of the Council shall hold office for such term not exceeding three years from the commencement of the Act as the Minister of Health may provide. After the expiration of the term of office of the first members, the Council shall be composed of 9 persons appointed respectively by the Privy Council, the Board of Education, and the Minister of Health, and of 16 persons, being persons registered as nurses under the Act, elected in accordance with the prescribed scheme and in the prescribed manner by the persons so registered at the date of election. Any members of the Council other than the first members shall hold office for a term of five years. If the place of a member of the Council becomes vacant before the expiration of his term of office, whether by death, resignation, or otherwise, the vacancy shall be filled by appointment by the body or persons by whom the member was appointed, or if the vacating member was an elected member, by the Council.

Register of Nurses.

Clause 2 establishes a register of nurses which shall consist of the following parts: (*a*) a general part containing the names of all nurses other than nurses to be included in some other part of the register; (*b*) a supplementary part containing the names of male nurses; (*c*) a supplementary part containing the names of mental nurses; (*d*) a supplementary part containing the names of nurses trained in the nursing of sick children; and (*e*) any other prescribed part.

Rules.

Clause 3 lays down that the Council shall make rules for the following purposes: (*a*) for regulating the formation, maintenance, and publication of the register; (*b*) for regulating the conditions of admission to the register; (*c*) for regulating the conduct of any examinations which may be prescribed as a condition of admission to the register, and any matters ancillary to or connected with any such examinations; (*d*) for prescribing the causes for which, the conditions under which, and the manner in which nurses may be removed from the register, the procedure for the restoration to the register of nurses who have been removed therefrom, and the fee to be payable on such restoration; (*e*) for regulating the summoning of meetings of the Council and the proceedings (including quorum) of the Council; and (*f*) generally for making provision with respect to any matters with respect to which the Council think that provision should be made for the purpose of carrying the Act into effect (including provision with respect to the issue of certificates to nurses registered under the Act and with respect to the uniform or badge which may be worn by nurses so registered), and for prescribing anything which under the Act is to be prescribed.

The clause further provides that rules made in pursuance of it shall contain provisions (*a*) requiring as a condition of the admission of any person to the register that that person shall have undergone the prescribed training, and shall possess the prescribed experience, in the nursing of the sick; and (*b*) requiring that the prescribed training shall be training either in an institution approved by the Council in that behalf or in the service of the Admiralty, the Army Council, or the Air Council; and (*c*) enabling persons who, within a period of two years after the date on which the rules come into operation, make an application in that behalf to be admitted to the register on producing evidence to the satisfaction of the Council that they are of good character, are of the prescribed age, are persons who were for at least three years before Nov. 1st, 1919, bona fide engaged in practice as nurses in attendance on the sick under conditions which appear to the Council to be satisfactory, and have adequate knowledge and experience of the nursing of the sick.

Rules made under the clause are not to come into operation until they are approved of by the Minister of Health, and every rule is to be laid for 21 days on the table of each House of Parliament.

Clause 4 makes provision for the appointment of a registrar and staff.

Fees.

Clause 5 deals with fees, but in the case of an existing nurse's application the amount payable on application shall not exceed a guinea. The annual fee payable in respect of the retention of a name on the register shall not exceed 2*s.* 6*d.*

Clause 6 prescribes the conditions for the admission to the register of persons trained outside the United Kingdom in any part of His Majesty's dominions. There is further a provision insisting upon reciprocity. As the Act does not extend to Scotland or Ireland a proviso is inserted to provide that in the event of the establishment of a register of nurses in Scotland or Ireland the Council shall make rules enabling persons registered as nurses in these countries to obtain admission to the register of nurses established in England and Wales.

Clause 7 gives an appeal against the removal of a name from the register and against refusal to approve of an institution for training.

Penalties.

Clause 8 deals with penalties for the unlawful assumption of the title of registered nurse and for the falsification of the register. It reads: "(1) If any person, not being a person duly registered under this Act, at any time after the expiration of three months from the date on which the Minister of Health gives public notice that a register of nurses has been compiled under this Act, takes or uses the name or title of registered nurse, either alone or in combination with any other words or letters, or any name, title, addition, description, uniform, or badge, implying that he is registered under this Act or is recognised by law as a registered nurse, or with intent to deceive makes use of any certificate of registration as a nurse issued under this Act to him or any other person, he shall be liable on summary conviction to a fine not exceeding, in the case of a first offence, £10, and in the case of a second or any subsequent offence £50. (2) If any person wilfully makes, or causes to be made, any falsification of any matter relating to the register, he shall be guilty of a misdemeanor and shall, on conviction thereof, be liable to a fine not exceeding £100."

Second Reading of the Bill.

On Tuesday, Nov. 18th, Dr. ADDISON (Minister of Health) moved the second reading of the Nurses Registration (No. 2) Bill. In explaining the provisions of the Bill he emphasised the necessity of a register in the steps for the improvement of the profession of nursing.—Sir W. WATSON CHEYNE gave general approval to the Bill, but hoped there would be an opportunity to discuss the regulations under it for the registration of nurses after they were drawn up. He was disappointed that the Bill was limited to England.—Captain ELLIOT commented on the fact that the Bill did not apply to Scotland.—Mr. MUNRO (Secretary for Scotland) said that a similar Bill for Scotland was already drafted, and he hoped to bring it in without delay.—Major MOLSON, Lieutenant-Colonel RAW, and Major FARQUHARSON supported the Bill, although the last mentioned regretted that the Bill did not do certain things.—Sir W. WHITLA expressed regret that the case of Ireland in regard to nursing had not been mentioned.—Dr. ADDISON thought it might reasonably be expected that a similar proposal for Ireland would be forthcoming.

The Bill was read a second time.

The Rats and Mice (Destruction) Bill passed through the report stage in the House of Lords on Tuesday, Nov. 25th.

HOUSE OF COMMONS.

TUESDAY, NOV. 18TH.

Military Hospitals in South Wales.

Mr. SIDNEY ROBINSON asked the Secretary for War whether it was intended to establish and maintain a military hospital in South Wales at Neath or elsewhere; and whether, before a decision was arrived at, consideration would be given to the fact that there was a school of medicine already existing at Cardiff which would be of great value to such hospital if situated in its neighbourhood.—Sir JAMES CRAIG (Parliamentary Secretary to the Ministry of Pensions) replied: The Ministry of Pensions is opening a hospital at

Neath almost immediately for the reception of disabled ex-Service men. Every effort has been made to establish a hospital in or near Cardiff, but it is found that no suitable accommodation is available.

Mr. ROBINSON: Is it the intention of the authorities to disband the hospital erected at Chepstow?—Sir J. CRAIG: I do not think so, but I am not in a position to answer a supplementary question. If the honourable Member gives me any information I shall be glad to consider it.

Medical Benefit Regulations for Scotland.

Mr. J. JOHNSTONE asked the Under Secretary for the Scottish Board of Health whether he was aware that draft medical benefit regulations containing proposed new conditions of service in England had been laid by the Minister of Health for England before the representatives of the medical profession and insurance committees; whether draft regulations had yet been prepared for Scotland; and, if so, whether these regulations had yet been submitted to the medical profession and insurance committees in Scotland, or, if not, when he proposed to do so.—Mr. PRATT replied: I am aware that advance copies of a draft of proposed medical benefit regulations have been circulated to panel and insurance committees in England. The matter of new medical benefit regulations for Scotland is engaging the attention of the Scottish Board of Health, who have arranged to consult representatives of insurance practitioners and insurance committees on the subject on Nov. 20th.

Spirit Restrictions Removed.

Lieutenant-Colonel POWNALL asked the Food Controller by private notice whether he was yet in a position to state the decision of the Cabinet with regard to allowing extra quantities of spirit to be cleared in view of the increased demand at this period of the year for medicinal and other purposes.—Mr. ROBERTS replied: I am now able to announce that the Cabinet have decided that all restrictions on clearances of spirits from bond shall be removed forthwith.

Infectious Diseases in London.

Mr. GRUNDY asked the Minister of Health if he could state the number of cases of scarlet fever and of diphtheria notified in the County of London in the months of September and October, and how many cases had been treated in the institutions of the Metropolitan Asylums Board; and whether any difficulty had been experienced by the various borough councils in finding accommodation for infectious diseases.—Dr. ADDISON replied: The following was the number of cases notified in the County of London during the months of September and October:—

	September.	October.
Scarlet fever	1205	2017
Diphtheria	775	1074

The following are the number of cases admitted to hospitals of the Metropolitan Asylums Board:—

	September.	October.
Scarlet fever	1100	1502
Diphtheria	750	925

Some difficulty has been experienced during the last six weeks in accommodating all the cases for which admission was sought, the chief causes being (*a*) the substantial increase in the number of fever cases this autumn, as compared with the numbers for the past five years (on Nov. 13th there were 1589 more cases in hospitals of the Metropolitan Asylums Board than on any date last year); (*b*) the fact that the military who have had the use of six of the Board's hospitals during the war have not yet evacuated all of them; (*c*) the difficulty in securing all the nurses and domestic staff required, a difficulty accentuated by the reduction of working hours; (*d*) the allocation of beds in some hospitals to meet urgent demands for accommodation for tuberculous soldiers. At the present date (Nov. 17th) the difficulty has virtually been overcome, so far as can be judged from the cases now being applied for from day to day by the Borough Councils.

WEDNESDAY, NOV. 19TH.

Discontent among Medical Officers.

Sir WATSON CHEYNE asked the Secretary for War if he was aware of the discontent among the temporary Royal Army Medical Corps officers with the army in India on account of the manner in which their contracts of service were being interpreted; that men who had signed contracts in 1917 until the termination of the present emergency or until their services were no longer required, whichever should happen first, were informed in February, 1919, that the period of the emergency during which officers might count service for gratuity would expire on August 3rd, 1919; that on August 4th, 1919, they were asked to sign a fresh contract, which they almost unanimously refused to do; that shortly afterwards another contract, with somewhat better terms of pay, was offered to them, and they were told that those who refused to sign would be retained in the service whether they liked it or not; that some men who refused to sign have since been sent home to England and posted to hospitals there instead of being demobilised and allowed to resume their private practices, in one case at least the medical man being a volunteer and not a conscript; and whether he would reconsider this matter, especially in view of the uncertainty occasioned by the discontinuance of the gratuity and the offer of fresh contracts.—Mr. CHURCHILL replied: I am not aware that any discontent exists amongst temporary Royal Army Medical Corps officers in India on account of the manner in which their contracts of service are being interpreted. These officers were offered a new contract at 800 rupees per mensem if they would undertake to serve in the country for another year. Those eligible for demobilisation and who did not sign the new contract, but whose services could not immediately be spared were granted 750 rupees per month with effect from July 1st, 1919. The new rates of pay, although they did not include a gratuity, were better than those rates upon which they had been serving up to July 1st. Royal Army Medical Corps officers in India, as elsewhere, who are serving on a contract for the duration of the present emergency are liable to be retained until the statutory date for the end of the war, and they were doubtless so informed, but a certain number of these have been sent home on public or compassionate grounds, or because they were en route for the United Kingdom from Mesopotamia, but detained in India on account of the emergency in the country. Junior officers, if on a "duration of the war" contract, sent to the United Kingdom may be retained and posted to commands at home for duty, and their claims for release may not be considered as pressing as those of other officers whom they relieve.

Control of Patent Medicines.

Sir PHILIP MAGNUS asked the Prime Minister whether, having regard to the further demands on the country connected with public health and the ill-effect of the use and advertisement of certain patent medicines, the Government would take an early opportunity of introducing a Bill dealing with some of the recommendations of the Select Committee on Patent Medicines, whose report was published in 1913.—Dr. ADDISON replied: The subject referred to in the question has been having my careful consideration, and I am hoping before long to be able to take some practical steps in regard to it. But I am not to-day in a position to state the nature of those steps nor the date. I may assure the honourable Member that I appreciate the importance of the subject, but I must have regard also to numerous other matters of a more pressing character.

R.A.M.C. Major's Pension.

Sir HERBERT NIELD asked the Financial Secretary to the War Office whether he was aware that, under the Royal Warrant published on Sept. 13th, 1919, the pension of a Royal Army Medical Corps major, payable after 20 years' service, was reduced from £365 to £321, and that, in effect, such an officer would be worse off, so far as regards pension, than the infantry officer who joined the army straight from school; and whether he would state what was the reason for this anomaly and injustice, seeing that the Royal Army Medical Corps major had to go through an expensive technical course to qualify before entering the army, while the higher rate of pension was given to those whose military education was largely furnished at the expense of the State.—Mr. FORSTER replied: My attention has already been called to this point, and it is under consideration.

Beckett's Park Hospital.

Colonel ASHLEY asked the Minister of Pensions whether he would give a definite assurance that the Beckett's Park Hospital, Leeds, would not be closed down until there is no longer need for its maintenance.—Sir J. CRAIG replied: The answer is in the affirmative.

THURSDAY, NOV. 20TH.

Convalescent Training Centres.

Mr. HALLAS asked the Pensions Minister whether there had been several schemes under consideration for the establishing of convalescent training centres for disabled service men; and, if so, how many were in operation, how many men were undergoing such training, and at what cost up to date.—Sir L. WORTHINGTON-EVANS replied: The establishment of convalescent centres for the concurrent treatment and training of discharged disabled men has engaged my earnest attention for some time past. Labour and other difficulties have hindered progress, but a centre at Blackpool to accommodate from 600 to 1000 men will be opened on Nov. 25th, to be followed by others in different parts of the country. Another large centre at Epsom has been delayed for nearly six months owing to a wage difficulty which has stopped all progress. In addition to these large institutions smaller centres have been established. So far the number of men undergoing concurrent treatment and

training is negligible, but with the establishment of the larger centres it is hoped within the next few months to have full facilities for 2500 cases. It is proposed in addition to increase the number of smaller centres. Figures of the cost to date are not at present available, as the Office of Works is still engaged in the necessary structural alteration of premises.

Major E. WOOD: How many men are there for whom no provision has yet been possible?—Sir L. WORTHINGTON-EVANS replied: I am afraid it is impossible to make any estimate of how many could be treated in the convalescent training centres until we are able to sort out the men suitable for those centres.

Captain COOTE: Has there been any difficulty in preparing the necessary buildings for setting up these training centres?—Sir L. WORTHINGTON-EVANS: I think the answer to the original question shows that there have been grave difficulties which I hope are being overcome.

Psycho-Therapy for Ex-Service Men.

Mr. MACQUISTEN asked the Pensions Minister whether he proposed to establish throughout the country cliniques for the treatment by means of psycho-therapy of functional nervous affections (including so-called shell-shock); whether, if he was to do so, he would issue instructions that all pensioners recommended to these cliniques for treatment would be informed of the nature of psycho-therapy, that it was a form of treatment in which more or less hypnotic suggestion was used; and whether, in the event of pensioners refusing to accept psycho-therapeutic treatment, he would ensure that the pensioners in question would not be prejudiced by such refusal, but that all pensioners would have offered to them the alternative of ordinary therapeutic treatment.—Sir L. WORTHINGTON-EVANS replied: The answer to the first part of the question is in the affirmative. With regard to the remainder of the question, I would remind the honourable Member that psycho-therapy is a comprehensive term, including many forms of treatment of which hypnotic suggestion is the form least frequently used. If in any case hypnotism should be proposed as the most desirable form of treatment the man would be perfectly free to refuse it and no penalty whatever would attach to his refusal.

Medical Treatment of Children in Ireland.

Mr. THOMAS GRIFFITHS asked the Chief Secretary to the Lord Lieutenant of Ireland whether the regulations for the carrying out of the Public Health (Medical Treatment of Children) (Ireland) Act had not yet been made; whether he could explain the reason for the delay in this matter; and whether the regulations when made would ensure that only fully trained nurses should be employed in connexion with the medical inspection and treatment of school children.—Mr. MACPHERSON replied: The Irish Public Health Council are at present engaged in drawing up these regulations, which are of a detailed and comprehensive character, and cannot be completed until the various interests affected have been consulted. The Council, however, realise the importance of formulating them at the earliest possible moment, and no time is being lost in the matter. The answer to the last part of the question is in the affirmative.

London Medical Benefit Fund.

Colonel BURN asked the Minister of Health if he would give the date upon which the London Insurance Committee were notified by him of the amount of the Medical Benefit Fund for the year ended Dec. 31st, 1918, the date upon which the Committee might be expected to make a settlement with the practitioners for the year 1918, the explanation of the delay in making the settlement; and whether the Minister would arrange for the payment to practitioners of interest at the current bank rate on the amount of the overdue settlement.—Dr. ADDISON replied: The London Insurance Committee were notified of the amount of the Medical Benefit Fund for 1918 on Sept. 9th, 1919. I am informed that the Committee hope to complete the accounting arrangements and to issue the cheques for the balances due to practitioners on the final settlement within the next few days. The accounting operations have been delayed by a few weeks as compared with previous years, because the same staff have been engaged in calculating and making payment of the current half-quarter's instalment of the doctors' remuneration and of the instalments of their 1919 war bonus. No funds are available to the Insurance Committee for the purposes of a payment such as is suggested in the last part of the question. I would add that the London doctors had instalments amounting to 84 per cent. of their money during 1918 and shortly after the end of the year. Some considerable delay before the final settlement for the year can be effected is unavoidable under present arrangements, but a new system is being introduced to which the profession have agreed from 1920 onwards which will entirely obviate these long delays in making a final settlement.

Maintenance of Hospitals.

Colonel NEWMAN asked the Minister of Health whether the Government had any intention of converting the hospitals, hitherto maintained by voluntary contributions, into institutions partially or wholly assisted from public funds?—Dr. ADDISON replied: The step suggested in the question would not be within the power of the Ministry of Health without legislation in respect of any hospitals not willing to receive such subsidies.

Anti-Influenza Vaccine.

Mr. WATERSON asked the Minister of Health whether instructions had been issued by his department to medical officers of health to arrange for a supply of anti-influenza vaccine for the public, or whether those medical officers of health who were notifying the public in their districts that such vaccine was available at a certain specified charge were acting independently of the Ministry of Health.—Dr. ADDISON replied: The answer to the first part of the question is in the negative, but the Ministry are now making arrangements for the preparation of a new supply of anti-influenza vaccine to be made available to medical officers of health for distribution to all practitioners in their areas who desire it. A circular and instructions will be issued, I hope, in a few days.

Infectious Disease in London.

Mr. GRUNDY asked the Minister of Health whether he was aware that at the present time infectious diseases were spreading in London, because the patients could not be isolated, and what steps he was taking in the matter.—Dr. ADDISON replied: The statement and figures which I handed in on Nov. 18th in reply to the honourable Member's question on the same subject showed that the matter is well in hand, and there seems no reason for thinking that any abnormal spreading of infectious disease is taking place or that there is any such shortage of beds as to have that effect.

Prices and Supplies of Quinine.

Mr. HURD asked the President of the Board of Trade if he would state why the report of the Committee on Prices and Supplies of Quinine Sulphate had not been published as promised, and what was the cause of the delay.—Sir A. GEDDES replied: I regret that it has not yet been found possible to publish the findings of the Committee appointed to investigate the prices and supplies of quinine sulphate; the delay has been occasioned by the necessity of considering certain legal questions connected with the publication of the report.

MONDAY, NOV. 24TH.

The Law of Death Certification.

Mr. ROWLANDS asked the Prime Minister whether he was aware that the Select Committee on Death Certification, 1893, reported that they were much impressed with the serious possibilities implied in a system which permitted death and burial to take place without the production of satisfactory medical evidence of the cause of death, and that the Departmental Committee on the Law Relating to Coroners, in their Report of 1910, stated that the present Law of Death Certification offered every opportunity for premature burial and every facility for the concealment of crime; that nothing had been done since the dates mentioned to remedy these evils; and if he would bring in legislation to give effect to the recommendations of these committees and to guard against the dangers to which they call attention. Mr. Rowlands asked the Minister of Health if he would state what was the number of uncertified deaths in England and Wales for the five years 1914 to 1918 respectively; and what was the proportion per 100 of such uncertified deaths to the total number of deaths in England and Wales in each of these years.—Sir J. TUDOR WALTERS (Paymaster General), replying for Dr. Addison (Minister of Health), said: The figures asked for are as follows:—

	Total deaths.	Uncertified deaths.	Proportion
1914	516,742	6279	1·22
1915	562,253	7684	1·37
1916	508,217	7528	1·48
1917	498,922	7552	1 51
1918	611,861	8244	1·37

Steps were taken in 1914 to reduce, so far as this object could be secured by administrative action, the dangers alluded to by requiring registrars to report all uncertified deaths to a coroner; so that all of the cases included in the above figures as "uncertified" have in fact been considered by a coroner and either been made the subject of an inquest or been decided by the coroner not to need one. But in my opinion the present law of death certification needs reform, and the matter is receiving attention with a view to its being dealt with so far as possible in legislation as soon as possible.

Treatment and Training of Tuberculous Men.

Lieutenant-Colonel RAW asked the Minister of Health if he had considered the recommendations of the committee

with regard to treatment and training of tuberculous ex-Service men, as the matter was one of serious urgency to the men concerned.—Sir J. TUDOR WALTERS replied: Yes, Sir; immediately the report was received steps were taken to expedite the carrying into effect of its recommendations as indicated in my reply to the honourable Member on 10th inst. on the same subject. And I have just received a further letter of consent from the Treasury in respect of the development of training facilities.

A Question of Medical Evidence.

Mr. NEIL MACLEAN asked the Parliamentary Secretary to the Ministry of Munitions whether he was aware that F. C. Thompson was injured on May 7th when at work at the Royal Small Arms Factory at Enfield Lock, and as a result had been unable to work since, and that the factory doctor's examination of his condition coincided with his panel doctor's; if he was aware that this man had received no compensation despite repeated applications; and whether he was in a position to state what action his department intended to take in the matter.—Mr. HOPE (Financial Secretary to the Ministry of Munitions) replied: The man referred to did not make any report at the time of the alleged injury while at work, nor did the medical evidence which was forthcoming support his subsequent claim that his incapacity was due to such an injury. In view, however, of further medical evidence it has recently been decided to pay him compensation under the Workmen's Compensation Act at a rate regarded as commensurate with the degree of incapacity, which appears to be only partial. A payment on account of arrears has already been made.

Poor-law Nurses and the Registration Bill.

Lieutenant-Colonel Sir SAMUEL HOARE asked the Minister of Health whether it was proposed to put upon the council to be set up under the proposed Registration of Nurses Bill a representative of the Poor-law nursing services.—Sir J. TUDOR WALTERS replied: It would be premature at this stage to make any statement in regard to appointments to be made to the first council, but I am fully alive to the importance of securing that the council shall be as representative as possible of all types of nursing service.

Vaccination.

Mr. WATERSON asked the Minister of Health whether, before introducing a Bill for the separation of the medical work of boards of guardians from their duties under the Poor-law, he would institute an inquiry into the present position of vaccination in England and Wales, with a view to the abolition of all compulsion, seeing that the compulsory vaccination law was opposed by more than half the parents of Great Britain, as shown by the vaccination returns.—Dr. ADDISON replied: It goes without saying that the question of public vaccination work and administration must be considered when the Poor-law machinery is dealt with, but I see no reason for "inquiry" such as is here suggested.

TUESDAY, NOV. 25TH.

Payment to Doctors at V.A.D. Hospitals.

Mr. WATERSON asked the Financial Secretary to the War Office whether he was aware that on June 16th, 1915, a circular letter was issued to all general officers, commanding-in-chief, Home forces, reference No. 24/, general No. /3952 (F 2), and sent out granting payment to medical practitioness at Voluntary Aid Detachment hospitals at a certain amount per diem per patient under treatment, and that at the close of this circular it was stated that the authority was not published for general information; and whether he would explain why, although payment would be made if asked for, doctors who were rendering service, sometimes at financial loss to themselves, were not to be informed of the provisions of this order.—Mr. FORSTER replied: This question, now more than four years old, has been fully dealt with in the House some two and a half years ago; but I may say briefly that the circular did not grant payment for services generally, but only instructed the local military authorities as to the limits within which they might remunerate doctors who were no longer prepared to tend the sick and wounded in Voluntary Aid Hospitals without payment. I gladly recognise the fact that the majority of members of the medical profession other than those called upon to give whole-time service did not ask for payment.

Houses for Nurses in Lewis.

Dr. MURRAY asked the Secretary for Scotland whether he was aware of the need for dwelling-houses for district nurses in the island of Lewis; and whether the Scottish Board of Health had made any progress in the direction of providing these houses.—Mr. MUNRO replied: I am aware of the need for dwelling-houses for district nurses in Lewis, and the Scottish Board of Health are at present in communication with the Lewis District Committee on the subject. The Board are prepared to give assistance where required from the Highlands and Islands (Medical Service) Funds towards the provisions of nurses' houses.

Appointments.

Successful applicants for vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

DE MORGAN, H. A., L.R.C.P., M.R.C.S., L.M.S.S.A., has been appointed House Surgeon at the Torbay Hospital, Torquay.

LISTER, Sir W. T., K.C.M.G., Surgeon to the Royal London Ophthalmic Hospital (Moorfields Eye Hospital).

MOXEY, P., M.B., Ch.B., D.P.H. Bristol, L.S.A., Medical Officer of Health and School Medical Officer to the County of the Isle of Ely.

SPILSBURY, B. H., M.B., B.Ch. Oxon., Pathologist and Lecturer on Morbid Anatomy and Histology at the Medical School of St. Bartholomew's Hospital.

TANGYE, C. E., B.A., M.D., B.S. Lond., L.R.C.P., M.R.C.S., D.P.H. Birm., County Medical Officer of Health for Wiltshire.

Royal Dental Hospital: STEADMAN, S. F. St. J., D.P.H., M.R.C.S., L.R.C.P., L.D.S., Lecturer on Dental Diseases in Children; STOBIE, H., M.R.C.S., L.R.C.P., L.D.S., Lecturer on Operative Dental Surgery.

Royal Devon and Exeter Hospital: BRASH, E. J. Y., B.A., M.B., B.C. Cantab., L.R.C.P., M.R.C.S., Surgical Registrar; COOKSON, H. A., M.B., B.Ch. Edin., F.R.C.S. Edin., D.P.H. Cantab., Assistant Pathologist; LOCK, N. F., F.R.C.S. Eng., M.A., M.B., B.C. Cantab., L.R.C.P. Lond., Honorary Assistant Surgeon.

Certifying Surgeons under the Factory and Workshop Acts: KILFEATHER, J. P., M.B., B.Ch. N.U.I. (Riverstown); DALE, C. B., L.R.C.P. Lond., M.R.C.S. Eng. (Birmingham, East).

Vacancies.

For further information refer to the advertisement columns.

Aylesbury, Royal Buckinghamshire Hospital. H.S. £200.
Belfast District Asylum.—Two Asst. M.O.'s. £300.
Birkenhead County Borough.—Asst. M.O.H. and Clin. Tuberc. O. £500.
Bolingbroke Hospital, Wandsworth Common, S.W.—H.S. £150.
Bristol Eye Hospital.—Hon. S. Hon. Asst. S.
Cambridge, Addenbrooke's Hospital.—H.P. £130.
Cancer Hospital (Free), Fulham-road, S.W.—Surg. Reg. £100.
Central London Ophthalmic Hospital, Judd-street, W.C.—Asst. S. Path. £75.
Chester Royal Infirmary.—H.P. £150.
City of London Maternity Hospital, City-road, E.C.—R.M.O. £100.
Colchester, Essex County Hospital.—H.P. £200.
Countess of Dufferin's Fund, India, Women's Medical Service.—Two Medical Women.
Croydon County Borough, Hospital for Infectious Diseases.—Res. M.O. £500. Asst. Res. M.O. £250. Also Res. M.O. for the Sanatorium, North Cheam, Surrey. £525.
Darlington Union.—M.O. and Pub. Vac. £350.
Deptford Metropolitan Borough.—M.O.H. £800.
Derby, Royal Derby and Derbyshire Nursing and Sanitary Association.—Two Hon. Obst. P.'s to Nightingale Nursing Home.
Dorchester, Dorset County Council.—Asst. County M.O. £400.
Dumfries, Crichton Royal.—Asst. P. £350.
East London Hospital for Children and Dispensary for Women, Shadwell, E.—Pathol. and Reg. £200.
Gloucestershire Royal Infirmary and Eye Institution.—Asst. S. Ophthal. S.
Hackney Union Infirmary.—Jun. Asst. M.O. £314.
Halifax, Royal Infirmary.—H.S. £200.
Hampstead General and North-West London Hospital, Haverstock-hill, N.W.—H.S. and H.P. £150 each. Phys. for Dis. of Skin.
Hospital for Women, Soho-square, W.—Clin. Assts.
Hull Royal Infirmary.—H.P. £200. Asst. H.S. £150.
Ilford Urban District Council.—Asst. M.O.H. £450.
Leamington Spa, Warwickshire United Districts.—M.O.H. £700.
Leicester, North Evington Poor-law Infirmary.—Res. M.O. £300.
Liverpool, Royal Southern Hospital.—Non-Res. Path. and Bact. £150.
London County Mental Hospitals.—Asst. M.O.'s. £300.
London Temperance Hospital, Hampstead-road, N.W.—Clin. Asst.
Maidstone, Kent County Ophthalmic Hospital.—Hon. Aural S.
Manchester City Education Committee.—Female Asst. Sch. M.O. £450.
Meathop, Grange-over-Sands, Westmorland Sanatorium and Home.—Second Asst. M.O. £250.
Metropolitan Hospital, Kingsland-road, E.—H.P. and H.S. £100. Asst. H.P. and Asst. H.S.
Middlesbrough, North Riding Infirmary.—Hon. Oph. S., Hon. Asst. S., and Hon. Anæsth.
Miller General Hospital for South-East London, Greenwich-road, S.E.—Sen. Res. M.O. £350.
Northamptonshire Sanatorium.—Interim Med. Supt. £400.
Oldham County Borough.—Asst. Tuberc. O. £390.
Oldham Royal Infirmary.—Ophthal. S. £50.
Portsmouth, Royal Hospital.—H.S. £150.
Prince of Wales's General Hospital, Tottenham, N.—Hon. Asst. P., Hon. P., Hon. Asst. Ophth. S., and Hon. Asst. S.
Queen Mary's Hospital for the East-End, Stratford, E.—Hon. Asst. P.'s.
Rochester, St. Bartholomew's Hospital.—Res. H.S. £300.
Royal Free Hospital, Gray's Inn-road, W.C.—Asst. P. M.O.'s in Charge of Electro-Therapeutic, &c., Depts.
Royal Surgical Aid Society.—Jun. S. 100 gs.
St. Albans, Herts County Asylum, Hill End.—Second Asst. M.O. £400.
St. Thomas's Hospital.—Phys. in Charge of Tuberc. Dept.
Salford Royal Hospital.—Cas. H.S. £100.
Southport General Infirmary.—Sen. H.S. £250.

Stafford, Staffordshire Education Committee.—Asst. Sch. Med. Inspectors. £450.
Stafford, Staffordshire General Infirmary.—H.S. £250. H.P. £200.
Surrey, Downs Sanatorium for Male Adults, near Sutton.—Asst. M.O. £250.
Surrey, Virginia Water, Holloway Sanatorium (Hospital for the Insane).—Jun. Asst. M.O. £300.
Swansea County Borough.—Asst. M.O. £450.
Taunton, Taunton and Somerset Hospital.—Sen. and Jun. H.S.'s. £200 and £150.
University of Birmingham.—Female Demonstrator in Anat.
Ventnor, Isle of Wight, Royal National Hospital for Consumption and Diseases of the Chest.—Asst. Res. M.O. £200.
Victoria Hospital for Children, Tite-street, Chelsea, S.W.—Sen. Res. M.O. £250.
Wolverhampton and Staffordshire General Hospital.—H.S. £200.

THE Chief Inspector of Factories, Home Office, S.W., gives notice of vacancies for Certifying Surgeons under the Factory and Workshop Acts at Batley and at Nantwich.

Births, Marriages, and Deaths.

BIRTHS.

COMYN.—On Oct. 24th, at Simla, India, the wife of Captain Kenneth Comyn, R.A.M.C., of a son.
HART.—On Nov. 15th, at Nursing Home, Norwich, the wife of J. Duncan Hart, North Walsham, Norfolk, of a daughter.
JAMESON.—On Nov. 18th, at Philbeach-gardens, S.W., the wife of Captain G. D. Jameson, R.A.M.C., of a son.
KELLY.—On Nov. 21st, at Eastern House, Hurstpierpoint, Hassocks, the wife of Dr. Francis H. Kelly, of a daughter.
THORN.—On Nov. 22nd, at "St. Martin," 28, College-road, Harrow, the wife of Harold E. Thorn, M.B., B.S., of a son.

DEATHS.

BORROW.—On Nov. 16th, at Alexandria, Frederick Charles Borrow, M.B. Lond., Surgeon, H.M. Transport *Tagus*, aged 43.
EVERSHED.—On Nov. 17th, at Fishbourne, near Chichester, Arthur Evershed, M.R.C.P. Lond., in his 84th year.
GRAY.—On Nov. 23rd, Temporary Captain William Harrington Gray, R.A.M.C., of 169, Auckland Hill, West Norwood, in his 44th year.
ROSS.—On Nov. 20th, at Thistle Mount, Waterfoot, Alexander Munro Ross, M.B., Ch.B. Aberd., aged 45 years.
STEVENS.—On Nov. 18th, at Lyncourt, Paignton, Cecil Robert Stevens, Lieutenant-Colonel, I.M.S., aged 51.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Communications, Letters, &c., to the Editor have been received from—

A.—Mr. F. L. Apperly, Lond.; Capt. H. St. A. Agate, M.C., R.A.M.C.
B.—Dr. A. F. Bill, Davos-Platz; Dr. G. Blacker, Lond.; Col. R. J. Blackham, C.B., C.M.G., C.I.E.; Dr. A. E. Boycott, Lond.; Dr. W. Langdon Brown, Lond.; Dr. H. W. Bayly, Lond.; Board of Agriculture and Fisheries, Lond.; Dr. J. Blomfield, O.B.E., Lond.; Prof. F. A. Bainbridge, Sidmouth; Messrs. Butterworth and Co. (India), Ltd., Calcutta.
C.—Mr. J. F. Colyer, Lond.; Dr. J. P. Cullen, Lond.; Dr. H. Carlill, Lond.; Mr. H. G. Chessher, Lond.; Mr. A. C. Chapman, Lond.; Mr. N. L. Chatterjee, L.M.S., Calcutta; Dr. H. P. Cholmeley, Forest Row.
D.—Mr. R. E. M. Delpech, Lond.
E.—Mr. W. H. Evans, Lond.; Miss M. L. Eyles, Bexhill-on-Sea; Dr. E. Evans, Cardiff.
F.—Dr. A. T. W. Forrester, Narborough.
G.—Dr. R. L. Gamlen, Stockport; Mr. G. E. Gask, Lond.; Sir A. P. Gould, K.C.V.O., Lond.
H.—Dr. S. Hastings, Lond.; Dr. C. T. W. Hirsch, Lond.; Dr. A. J. Hall, Sheffield.
I.—Dr. E. C. B. Ibotson, Corris.
J.—Dr. A. J. Jex-Blake, Lond.; Mr. F. W. Joshua, Great Malvern; Lieut.-Col. S. P. James, I.M.S.; Dr. D. W. Carmalt Jones, Lond.
K.—Dr. E. H. Kettle, Lond.; Dr. J. Kirkland, Lond.; Mr. C. L. Kingsford, Lond.
L.—Dr. J. G. Ledingham, Lond.; Dr. G. C. Low, Lond.; Mr. R. Lake, Lond.
M.—Dr. P. Manson-Bahr, D.S.O., Lond.; Mr. T. H. Morse, Deal; Ministry of Health, Lond.; Dr. R. O. Moon, Lond.; Dr. R. W. MacKenna, Liverpool; Dr. E. D. Macnamara, Lond.
N.—National Children Adoption Association, Lond.; National Safety Council, Chicago.
P.—Dr. W. A. Potts, Edgbaston; Mr. J. F. Peart, Lond.; Surg.-Lieut.-Comdr. R. J. S. Parnell, R.N.
R.—Röntgen Society, Lond.; Dr. H. F. Renton, Doncaster; Royal College of Physicians of Edinburgh, Sec. of; Mr. S. S. Rao, Shimoga; Mr. R. P. Ratnakar, Manchester; Major T. S. Rippon, O.B.E.; Dr. W. C. Rivers, Worsboro' Dale; Dr. F. A. Roper, Exeter.
S.—Dr. A. G. Shera, Eastbourne; Prof. W. Stirling, Manchester; Scottish Midwives Association, Lond., Sec. of.
T.—Dr. F. E. Tylecote, Manchester; Mr. A. H. Tubby, C.B., C.M.G., Lond.; Mr. H. Tilley, Lond.
U.—University of London, Academic Registrar of.
V.—Mr. R. M. Vick, C.B.E., Lond.
W.—Dr. G. A. Watson, Rainhill; Dr. J. D. Wynne, Norwich; Dr. J. H. F. Wilgress, Folkestone; Dr. E. Ward, Paignton; Dr. N. Walker, Edinburgh; Messrs. J. Weiss and Son, Lond.

Communications relating to editorial business should be addressed exclusively to the Editor of THE LANCET, 423, Strand, W.C. 2.

DONATIONS AND BEQUESTS.—By the will of the late Mr. Frederick Burgovne, of Harley-street, London, W., the testator bequeathed £1000 each to the Middlesex Hospital and St. Bartholomew's Hospital.

Medical Diary for the ensuing Week.

SOCIETIES.

ROYAL SOCIETY, Burlington House, London, W.
THURSDAY, Dec. 4th.—Mr. A. M. Williams: The Adsorption of Gases at Low and Moderate Concentrations. Part I., Deduction of the Theoretical Adsorption Isotere and Isotherm. Part II., Experimental Verification of the Form of the Theoretical Isoteres and Isotherms. Part III., Experimental Verification of the Constant in the Theoretical Adsorption Isotere (communicated by Prof. J. Walker).—Mr. T. R. Merton: (1) On the Secondary Spectrum of Hydrogen (communicated by Prof. A. Fowler); (2) On the Spectra of Isotopes (communicated by Prof. A. Fowler).—Mr. E. P. Armstrong and Mr. T. P. Hilditch: A Study of Catalytic Actions at Solid Surfaces. Part II. (communicated by Prof. H. E. Armstrong).—Mr. F. Horton and Ann C. Davies: An Experimental Determination of the Critical Electron Velocities for the Production of Radiation and Ionisation on Collision with Argon Atoms (communicated by Mr. C. T. R. Wilson).

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

Monday, Dec. 1st.

SOCIAL EVENING: The first Social Evening will be held on Monday next at 8.30 P.M., when the President, Sir Humphry Rolleston, and Lady Rolleston will receive guests.
The Library will be open with a display of interesting exhibits. Light refreshments and smoking.

MEETINGS OF SECTIONS.

Tuesday, Dec. 2nd.

SURGERY: SUB-SECTION OF ORTHOPÆDICS (Hon. Secretaries—A. S. Blundell Bankart, R. C. Elmslie): at 5 P.M.
Cases:
Mr. Fairbank: (1) Two Cases of Multiple Deformities of the Limbs; (2) Sterno-mastoid Tumour in a Child born by Cæsarean Section.
Mr. Rowley Bristow: (1) Congenital Defect of Femur; (2) Multiple Enchondromata.
Mr. Laming Evans: Flexion of the Knee in Arthritis after 13 Years Unsuccessful Treatment.
Mr. Elmslie: (1) Multiple Deformities of the Limbs; (2) Result of Suture of Median and Ulnar Nerves in the Forearm.

PATHOLOGY (Hon. Secretaries—J. A. Murray, Cecil Price-Jones): at 8.30 P.M.
Dr. F. A. Teale; Antitrypsin in its Relation to Bacterial Toxicity and Infection.
Other Communications.

Wednesday, Dec. 3rd.

SURGERY (Hon. Secretaries—Cyril A. R. Nitch, Herbert J. Paterson): at 5.30 P.M.
Discussion:
Mr. Percy Sargent, C.M.G., D.S.O., will open a discussion on "The Surgery of the Pituitary Gland."

MEDICINE, NEUROLOGY, OPHTHALMOLOGY: Members of these Sections are cordially invited to be present and to take part in the discussion referred to above.

OPHTHALMOLOGY (Hon. Secretaries—Malcolm Hepburn, W. H. McMullen): at 8.30 P.M.
Cases (to be shown at 8 P.M.):
Mr. G. Potts: (1) Keratitis following Explosion of Gunpowder; (2) Detached Retina with Unusual Condition of the Conjunctiva; (3) Case of "Gassing" followed by Tubercular Iritis.
Mr. Malcolm Hepburn: Aneurysmal Varix of Cavernous Sinus.
Discussion:
On Dr. Rayner Batten's paper "On the Need for Ophthalmic Physicians for the Advancement of Ophthalmology (read at meeting of Section held on Nov. 5th—for paper see THE LANCET, Nov. 29th, 1919).

Thursday, Dec. 4th

BALNEOLOGY AND CLIMATOLOGY (Hon. Secretaries—J. Campbell McClure, C. F. Sonntag, F. G. Thomson): at 5.30 P.M.
Paper:
Dr. C. F. Sonntag: The History of Baths and Bathing in Britain before the Norman Conquest.
Members will dine at Pagani's Restaurant at 7 P.M. Those intending to be present are requested to send their names to Dr. C. F. Sonntag, 80a, Belsize Park-gardens, by the first post on Thursday, Dec. 4th.

HISTORY OF MEDICINE.—Members of this Section are cordially invited to attend the meeting of the Section of Balneology.

OBSTETRICS AND GYNÆCOLOGY (Hon. Secretaries—J. S. Fairbairn, Herbert Williamson): at 8 P.M.
Discussion:
On the Recently Published Report on the Teaching of Obstetrics and Gynæcology to Medical Students and Graduates in London. (See Proceedings of the Section of Obstetrics and Gynæcology, vol. xii., pp. 108-134.) Dr. T. W. Eden, Chairman of the Teaching Committee, will introduce the discussion, and a Criticism of the Report will be read by Dr. Herbert Spencer.
Copies of the Report and of the Criticism may be obtained on application to the Royal Society of Medicine.

Friday, Dec. 5th.

LARYNGOLOGY (Hon. Secretaries—Irwin Moore, Charles W. Hope): at 4 P.M.
Cases and Specimens will be shown by—
Dr. G. A. Carter, with Sir StClair Thomson and Mr. Charles W. Hope, Mr. Colledge, Mr. Dawson, Dr. Dundas Grant, Mr. Douglas Guthrie, Dr. William Hill, Dr. Jobson Horne, Mr. Mollison, and Dr. Irwin Moore.

ANÆSTHETICS (Hon. Secretaries—R. E. Apperly, Ashley S. Daly); at 8.30 P.M.

Paper:
Dr. C. H. Mott: Intratracheal Insufflation of Chloroform; a Report on 357 Cases.

Exhibition of Apparatus and Documents of the late Mr. Clover.

THE TUBERCULOSIS SOCIETY AND THE ASSOCIATION OF SCHOOL MEDICAL OFFICERS (JOINT MEETING), at the Rooms of the Medical Society, 11, Chandos-street, Cavendish-square, W.

MONDAY, Dec. 1st.—8 P.M., Discussion on the Various Aspects of Tuberculosis in Relation to School Life, opened by Dr. J. Kerr. Dr. C. Riviere, Dr. F. S. Langmead, Dr. F. C. Shrubsall, and Dr. F. K. Menzies are expected to take part in the discussion.

ROYAL SOCIETY OF ARTS, John-street, Adelphi, W.C.

MONDAY, Dec. 1st.—8 P.M., Cantor Lecture:—Dr. J. T. Hewitt: Synthetic Drugs. (Lecture I.)

RÖNTGEN SOCIETY, at the Rooms of the Medical Society of London, 11, Chandos-street, Cavendish-square, W.

TUESDAY, Dec. 2nd.—8.15 P.M., Paper:—Dr. E. T. Jones: The Action of Induction Coils. Major Cooper, R.A.M.C.: Description and Demonstration of New High-speed Interrupter for Induction Apparatus and Frimandeau Coils.

MIDLAND OBSTETRICAL AND GYNÆCOLOGICAL SOCIETY, at the Infirmary, Derby.

TUESDAY, Dec. 2nd.—4.30 P.M., Paper:—Mr. B. Whitehouse: The Indications for Cæsarean Section. To be followed by a Discussion in which Mr. J. F. Jordan and Mr. C. Marriot intend to take part.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, W.C.

WEDNESDAY, Dec. 3rd.—5 P.M., The Thomas Vicary Lecture:—Sir John Tweedy: The Surgical Tradition.

ROYAL INSTITUTE OF PUBLIC HEALTH, in the Lecture Hall of the Institute, 37, Russell-square, W.C.

Course of Lectures on Housing Problems and Town Planning in Relation to Public Health.

WEDNESDAY, Dec. 3rd.—4 P.M., Lecture VI.:—Mr. R. Unwin: Town Planning, its Influence on the Health and Well-being of the Citizens.

Course of Instruction for Candidates as Tuberculosis Officers, General Practitioners, and others. Bacteriological Demonstrations will be given in the Laboratories of the Institute, and visits arranged to Sanatoriums, Tuberculosis Dispensaries, &c.

THURSDAY, Dec. 4th.—5 P.M., Lecture IX.:—Dr. J. Watt: The Temperature in Pulmonary Tuberculosis.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton, S.W.

WEDNESDAY, Dec. 3rd.—4.30 P.M., Lecture:—Dr. W. J. Fenton: The Dispensary in Pulmonary Tuberculosis.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen-square, W.C. 1.

MEDICAL SCHOOL.

MONDAY, Dec. 1st.—2-3.30 P.M., Out-patient Clinic: Dr. Collier. 3.30 P.M., Lecture:—Mr. Paton: Papillœdema. I.

TUESDAY, Dec. 2nd.—2-3.30 P.M., Out-patient Clinic: Dr. Grainger Stewart. 3.30 P.M., Ward Cases: Dr. James Taylor.

WEDNESDAY, Dec. 3rd.—2 P.M., Lecture:—Dr. Grainger Stewart: Symptoms of Disease of the Pituitary Gland. 3.30 P.M., Lecture:—Mr. Scott: Menière's Contribution to Neurology.

THURSDAY, Dec. 4th.—2-3.30 P.M., Out-patient Clinic: Dr. Farquhar Buzzard. 3.30 P.M., Lecture:—Dr. S. A. Kinnier Wilson: Involuntary Movements.

FRIDAY, Dec. 5th.—2-3.30 P.M., Out-patient Clinic: Dr. Gordon Holmes. 3.30 P.M., Ward Cases: Dr. Tooth.

Fee for Post-Graduate Course £5 5s. C. M. Hinds Howell, Dean.

NATIONAL HOSPITAL FOR DISEASES OF THE HEART POST-GRADUATE COURSE, Westmoreland-street, W.

MONDAY, Dec. 1st.—11 A.M., Out-patients: Dr. Goodall. 2 P.M., In-patients: Dr. Moon.

TUESDAY.—2 P.M., Out-patients: Dr. R. Wells. 2.30 P.M., In-patients: Dr. Gibbes.

WEDNESDAY.—2 P.M., Out-patients: Dr. Moon. 5.30 P.M., Dr. Hamill: Therapeutics of the Circulation.

THURSDAY.—10 A.M., In-patients: Dr. Hamill: 2 P.M., Out-patients: Dr. Price.

FRIDAY.—2 P.M., Out-patients: Dr. Gibbes. 2.30 P.M., In-patients: Dr. Wells.

SATURDAY.—10 A.M., In-patients: Dr. Hamill.

VICTORIA HOSPITAL FOR CHILDREN POST-GRADUATE COURSE, Tite-street, Chelsea, S.W.

MONDAY, Dec. 1st.—4.30 P.M., Lecture:—Dr. R. C. Jewesbury: Congenital Syphilis.

TUESDAY.—4.30 P.M., Lecture:—Mr. C. M. Page: Congenital Dislocation of Hip.

WEDNESDAY.—3 P.M., Dr. S. Wyard: Demonstration of Spirocheta Pallida (in Pathological Laboratory).

THURSDAY.—4.30 P.M., Lecture:—Mr. V. Kay: Care of Primary Dentition.

FRIDAY.—4.30 P.M., Lecture:—Mr. C. A. Joll: Cleft Palate and Hare Lip.

ST. JOHN'S HOSPITAL FOR DISEASES OF THE SKIN, 49, Leicester-square, W.C.

THURSDAY, Dec. 4th.—5 P.M., Chesterfield Lecture:—Dr. M. Dockrell: Vesicular and Bullous Diseases and their Treatment.

MANCHESTER ROYAL INFIRMARY POST-GRADUATE CLINIC.

TUESDAY, Dec. 2nd.—4.30 P.M., Lecture:—Dr. F. C. Moore: Disordered Action of the Heart.

Notes, Short Comments, and Answers to Correspondents.

SANITARY ENGINEERING IN CONNEXION WITH THE HOUSING PROBLEM.[1]

BY A. P. I. COTTERELL, M.INST.C.E.,
ASSOC. SOCIETY OF MEDICAL OFFICERS OF HEALTH.

HOUSE drainage has to a large extent become standardised One might go farther and say that it has been mummified in our building by-laws, like other formerly virile features of house building. Apparently our forefathers, with the best intentions, thought that they had reached the acme of good practice, and embalmed their wisdom in regulations bound in "shalls" and "musts" that securely encased progress. Again and again attempts have been made to release the victim, but now the perpetrators themselves have seen their error, and in the new Housing Act propose, where they see fit, to relax their by-laws.

There are many details in house drainage in which advantage can be taken of the new freedom. We could, for instance, deal with ventilation more efficiently, and prevent its introduction at places where it does more harm than good. We could also, under certain circumstances, abolish the intercepting trap, as, indeed, has already been recommended by a Departmental Committee.

Water fittings and appliances, both hot and cold, are now largely standardised. Occasionally new developments break out, some of which are retained, and others discarded. The increasing demands for hot water to each house are bringing forward such fittings as the bath geyser and the gas heater to the scullery tap, and also the ingenious thermostat.

A large field begins to open out here to which much more attention should be given in house planning. I refer especially to the respective merits of water heating by coal fires or coke stoves, gas or communal boilers; to the alternatives of cooking by coal, steam, gas, or electricity; to the facilities for artificial lighting; and to the introduction of mechanical appliances for house cleansing and for washing to help reduce manual labour, and to bring the science of housekeeping up to date.

Methods of Obtaining Hot Water.

Let us take first the various methods of obtaining hot water. It is practically agreed that hot water must be provided for in some better way than by a kettle on the kitchen fire. The usual method is to insert a back boiler behind the kitchen range, and to run flow and return pipes, probably quite unprotected from heat radiation, to the bath, wash basins, scullery sink, &c. I see that the Ministry of Health has stated that it is prepared to accept a simple arrangement of this sort for cottages to be built under the housing scheme. The chief comment I can make is that the appliance is time-honoured, and therefore, shall I say, horribly wasteful; that the installation can be put in by any ordinary workman without spending much thought in design; and that the coal consumption, which is considerable, can be masked behind the kitchen fire. The kitchen range is most extravagant in its use of coal, and so productive of dust that it ought to be superseded; the warming of the kitchen should be provided for on the same lines as any other sitting-room.

A hot water-supply worked with a coal cooking range, as is commonly done, has the double disadvantage that it is not only extremely wasteful of heat, but it necessitates a large fire, even in summer, when otherwise cooking might be done on a gas or electric stove and the fire dispensed with altogether. To overcome this a supplementary boiler has been introduced into many larger houses, fired by coke, anthracite, or gas for hot water only, sometimes worked alone and sometimes connected with the pipes from the range boiler for use when the range is out of action. In a circulatory system of this sort a good deal of heat, amounting to 100 per cent. or more of the energy required for actual water heating, may be lost if the system is badly designed or if the pipes are unprotected; in any case, some heat loss has to be reckoned with.

The Communal System.

There remains the alternative of a hot water-supply on a communal system either from a central station or from an installation designed for a group of houses, and combined possibly with a washhouse designed also to serve the group. The Liverpool corporation has supplied continuous hot water from a central station to 66 tenements, each containing a bath, since 1913, at a cost of 6*d.* per tenement per

[1] Abstract of an opening address read at a conference of the Institution of Sanitary Engineers, held at Caxton Hall, Westminster, on Nov. 5th, 1919.

week. A Manchester corporation committee report in 1918 states that it has received estimates for hot water supply to an estate of 200 houses (10 to the acre) of 1*s.* 2*d.* per week per house and for 400 houses 8½*d.* per week, whilst the capital cost per house works out at £22 17*s.* (or £20 17*s.* with 400 houses) against at least £24 per house on the separate system. The Tudor Walters Committee estimate the cost at 9*d.* to 1*s.* 9*d.* per house per week. Most cottagers would not consider 1*s.* per week to high a charge for a constant hot water supply.

On a larger scale there might be a central system of steam piping for a considerable number of houses, such piping being carried to sub-station calorifiers arranged for groups of 10 to 12 houses, whence hot water would be piped to the respective house fittings. As is sometimes done with electricity, the supplies might be charged at a flat rate per house, with the right to fix a meter and to make an extra charge if the consumption exceeded an agreed maximum. In any such communal system of hot water or steam supply allowance must be made for heat loss and must as far as possible be provided against.

Comparison of Cost of Different Systems of Heating Water.

Coal.—It is estimated in the North that most householders burning only one fire a day consume about 2 cwt. of coal a week on the average, ranging from 3 cwt. in winter to 1 cwt. in summer. In the South it may be a little less. If the summer consumption represents the amount needed for hot water, limited and intermittent as it is at the best, the cost at 3*d.* per cwt. is 3*s.* per week. It may be taken that a moderate hot water-supply per day would be:—

For the bath	30 gallons at	100° F.
For washing	15 „	150° F.

Gas.—Heating water by gas to 100° requires on the average 1¼ cubic feet of gas per gallon, and to 150° 2¾ cubic feet. The cost of heating the above water-supply at 4*s.* 6*d.* per 1000 cubic feet would, therefore, be 2*s.* 6*d.* per week. Radiation losses, which might easily increase the cost to 7*s.* per week, must be taken into account, as well as the set off of reduced heat-consumption possible by the use of the thermostat.

Electricity.—In heating water by electricity ¼ unit is needed to boil one gallon. Therefore, for the same quantity and heat as above given, the cost at 1½*d.* per unit would be 8*s.* 2½*d.* per week, to which again must be added radiation losses, running the cost up to nearly 24*s.* a week. It is out of the question at present.

Communal system.—On a communal system the equivalent quantity of water heated in a boiler and supplied at a steady temperature of 150° would absorb 15 lb. of coal per house per week. Heat radiation losses, reduced by protection to the lowest point, and the cost of supervision, must again be added, but after allowing liberally for the former it is quite possible to supply hot water to groups of houses from 60 upwards within the prices already estimated at Manchester and in the Tudor Walters Report.

Against the extra capital outlay involved in either of the above systems of heating, there should be set the corresponding reduction of cost in the house and its fittings.

Comparisons of Different Types of Cooking Apparatus.

The comparative cost of a supply of the same amount of thermal units for heating purposes by way of coal, gas, or electricity has been estimated to be in the following ratio: coal, 1; gas, 2·2; electricity, 8. But gas and electricity are so much more efficient than a coal fire as to be able to hold their own when all considerations are taken into account, and in small houses where care is taken not to waste gas or electric current it may be even cheaper than a coal fire that has to be maintained in order to deal with cooking requirements as they arrive. Hence the daily heat unit consumption of a coal fire is considerably larger than that of the gas cooker. The electric cooker competes with the gas cooker in that it makes even better use of the heat units consumed.

At the Swanpool Village, Norwich, it is proposed to erect a special electric installation for the supply of current for lighting and cooking. Another feature is the proposal to utilise spare steam from adjoining works for hot water and heating. It is understood that these services will be done for 6*s.* per week, and it is claimed that there will be a saving in the cost of construction. At another projected village in the North it is proposed to instal electric cookers and to put electric fires in all the rooms of the house save one, which will be provided with the ordinary coal fire.

My personal experience with a gas cooker at 2*d.* per 1000 cubic feet and subsequently an electric stove at 1*d.* per unit has been that with care the cost per week runs out to about the same. Economies in construction and maintenance can and should be effected by the provision of gas or electric cookers. These are days when coal consumption is a national concern and the reign of the coal-range, of whatever type, whether open or closed, ought to be brought to an end.

I have not dealt with cooking by steam, but I think it will be obvious that if communal steam piping were introduced a great deal of cooking could be carried out very cheaply, in the same way as is done in large institutions at the present day.

Facilities for Artificial Lighting, Cleaning, and Washing.

Facilities for artificial lighting are generally settled for us beforehand in our large towns by efficient gas and electric installations. But it is an item of importance, and in country districts, where no public supply exists, considerable thought should be given to the most economical and efficient system. At any rate, we ought not to have to fall back upon oil and candles.

I have mentioned facilities for cleaning and for washing. We all hope some day to see electric power universally distributed through our land. When that comes, and even where electric mains exist to-day, it ought to be possible to introduce methods whereby the "donkey work" of the housewife can be very much reduced. For instance, if a house were piped as for gas-piping carried out to the dust receptacle, attachments might be made for a suction sweeper worked by a small motor in the scullery, whereby all dust from carpets, and even walls and furniture, could be carried out of the house without being blown in again by dusters shaken from open windows. A little motor would be useful for household purposes, and could even be made use of for washing appliances. As a matter of fact, makers of laundry appliances are already introducing wringers and other machinery worked by electric power.

As far as washing is concerned, there are great possibilities where hot water supply is adopted on the communal system. If steam were carried to joint washhouses to serve, say, a group of six or eight cottages, and passed through calorifiers, the housewife could do her washing within sight of her home; or, again, the "bag wash" recommended by the Women's Committee could very well be undertaken by a central heating station at an enormous saving in cost. In fact, the communal hot water system would work in with several other communal services. In many village housing schemes the lighting and heating, hot water and sewage disposal services might be worked together. It would then be worth while to devote the time of one or two men to running the communal services for a comparatively small group of houses and make it possible to introduce these amenities into the country districts. Mention has not been made of the national saving of coal effected by the introduction of these engineering facilities, but it is obviously very great.

The work of the sanitary engineer impinges upon many other professions and makes it necessary that he should have a speaking acquaintance with them. His work has much to do with the health and comfort of the future population, and it is, perhaps, not too much to say that the solution of the housing problem will lie not alone in the erection of houses in which have been installed the best sanitary conditions in their broadest sense.

THE PHYSICS OF THE AIR IN RELATION TO HEALTH.

AN interesting paper was read at a meeting of the Royal Meteorological Society on Nov. 19th by C. W. B. Normand, M.A., B.Sc., of the Meteorological Office, Simla, on "The Effect of High Temperature, Humidity, and Wind on the Human Body." The author at the outset dealt with the fatal effects of the simoom, "a suffocating wind like the blast of a furnace." The assumption was made throughout the paper that atmospheric conditions resulting in a net gain of heat to the body must be fatal. Physical experiments were directed to the rate of cooling of wet surfaces at body temperature under atmospheric conditions to supply the data for determining the upper limits of existence. An attempt was made to measure these conditions by noting the movements of the kata-thermometer, the instrument which Professor Leonard Hill has introduced to estimate the cooling powers of the atmosphere. It was found that there was a wide divergence between the kata-thermometer and the ordinary wet-bulb curves for high winds, and, more important still, these curves were found to lie on different sides of the curves for a calm. The explanation offered is that the wet kata-thermometer does not evaporate so freely as a wet bulb, owing to its glove covering reducing the rate of evaporation. This, the author remarked, may be a fault on the right side, for in all ordinary climatic conditions the human body also adjusts its heat loss by restricting the rate of perspiration. When, however, conditions are near the upper limit for existence, and the body is fighting to keep the temperature down to the normal, the sweat glands will pour out sweat and will strive to make the skin function an efficient wet surface up to the point at which the glands can do no more and the maximum rate of perspiration is reached. The author, in view of these considerations, is led to prefer basing any conclusion about the upper climate limit for existence upon the results given by the wet-bulb formula rather than upon the wet kata-thermometer equation. In an interesting discussion which followed,

Professor Leonard Hill described the kata thermometer as an empirical instrument introduced for the purpose of determining comfortable and uncomfortable temperatures. The formulæ were worked out in wind-tunnels for comparison with meteorological data, and experiments had never been carried out with the kata-thermometer at temperatures above body temperatures. With regard to the lecturer's remarks that the wet kata-thermometer did not evaporate as quickly as the wet bulb, Dr. Hill suggested that the sheltering effect of the kata-bulb was a factor to be considered, and the sheltering effect obviously was greater in the case of the human body. The sheltering effect was far more likely to be the cause of divergence, but he would like to reserve his opinion on the whole question for experimental and observational work. With regard to heat-stroke there was always a latent period as the whole body had to heat up; a man might thus get through a heat wave, which would otherwise have overpowered him. Many a person could stand 104° for a time, the temperature would come down all right. In Mr. Normand's summing-up of these functions of the body which could be physiologically adapted to conditions, evaporation from the lung was not included. Heat polyhidrosis was the normal reaction to high temperatures; in the case of heat-stroke this mechanism broke down, and the cause would seem to be fatigue of the sweat glands. In temperatures above that of the body there was no other method left of cooling the body, and the man who got heat-stroke was the man whose sweat glands refused to work. In Mesopotamia it was found that the man who was dry begged to have the fans in the wards cut off, while the man who was sweating begged to have them kept on. By means of wet sheets, by spraying the patients with water, and by the use of fans heat-stroke had been successfully dealt with in Mesopotamia as well as in India. The exhaustion of the sweat glands depended on the nerve centres of the sympathetic nervous system generally, and on whether the man was weakened in any way. With regard to the exposure of the body and the wearing of spinal pads, if a person was bending down and the spine was exposed to the sun with no protection, actual heating of the spine would result. It had been experimentally proved that this would cause overheating of the spinal cord, with disastrous results. The sun was an enormously important factor in producing heat-stroke.

Captain R. C. T. Evans, R.A.M.C., said that his Persian servant had told him that the way to circumvent the danger arising from the simoom was to lie down and bury hands and face in one's clothes. This statement agreed with the lecturer's contention. It was the actual velocity and not the heat of the wind which caused death, because it heated the body more than would be compensated for by evaporation. Those who overcame the trouble did so by burying the body from the wind itself. An important factor in this case, he thought, was not the fatigue of the sweat glands, but the beginning of toxic effects from disease. In most of the cases under his care the patient had been ill a day or two beforehand. The power of the human body to stand heat varied enormously. In 1917 in Mesopotamia during some four weeks of the July–August period there was an excessively high temperature which went up in steps. Starting perhaps at 105°, and remaining at this level for four or five days, the temperature rapidly went up to 110°, and after six or seven days rapidly rose again to 115°, stopped, and then went on to 120°. He had actually seen 121½°. Each period was followed by a series of heat-strokes. It was said that a cup of tea was the best thing to prevent heat-strokes. That was true for the average person when the temperature did not exceed 100° to 105°. A cup of tea made the speaker beautifully cool afterwards, but if the temperature was greater than 105° it made him hotter and he had to have ice drinks. On the other hand, a dentist of his acquaintance could drink a cup of tea with good results at a higher temperature than 105°, while he (the speaker) would find his physiological sweat glands already working their hardest and not capable of responding to further stimulation. There were three effects of heat which had to be dealt with in the army—a state of collapse resulting from the effects of heat, heat-stroke not caused by exposure to the sun, and sunstroke; the latter might have the effects of the heat-stroke, or, again, those mental effects commonly called sunstroke, without the classical picture of heat-stroke, but none the less a form thereof. The speaker had seen a patient with a temperature of 109° recover completely; 110° or 111° did not necessarily mean death provided the temperature did not act for too prolonged a period.

Lieutenant-Colonel Martin Flack, R.A.F., called attention to new points discovered with regard to airmen who could stand high altitudes. The fit man could be distinguished rom the unfit by his vital capacity—namely, the amount of air he could forcibly expire after a full inspiration. The man who was becoming unfit lost his vital capacity. He believed this to be a very important matter. It was not the power to breathe in which was lost but the power to breathe out. The man who had a large capacity got rid of a large amount of water from his lungs. The man who was fatigued had a small respiratory force and could not bring the lung evaporation into play. Stuffy atmospheres and a sedentary life brought about some diminution of respiratory force. The power of adequately emptying the lungs previously to filling them was one of the most important things.

A FIFTEENTH-CENTURY PRESCRIPTION.

To the Editor of THE LANCET.

SIR,—I was much interested in your note on a Fifteenth-Century Prescription, which appeared in THE LANCET for to-day. I would add to your account that the word "acedule" certainly means "sorrel," not the wood-sorrel but the large-leaved kind, of which the common English name was "souredock." As to "manus Christi" I suspect there is little doubt that this term is a variant for "palma Christi"—i.e., the castor-oil plant. It derived its name from the five, or sometimes seven, digitations of the leaves, which were supposed to resemble a hand with the fingers spread out.

I am, Sir, yours faithfully,

Forest Row, Nov. 22nd, 1919. H. P. CHOLMELEY.

PUBLIC HEALTH AT CAYMAN ISLANDS (JAMAICA) IN 1918.

ACCORDING to the last Census the total population was 5564, of whom 2322 were white, 2211 coloured, and 1031 black. The death-rate for 1917–18 was 12 per 1000 and the birth-rate 27 per 1000. The report of Dr. J. L. Hydrick on the hookworm survey of the Cayman Islands, conducted during the previous year under the auspices of the International Health Board, Rockefeller Foundation, has been received. It is found that the hookworm infection is not great and not likely to be serious, except in one or two districts. The difficulty of obtaining lumber has hindered the most effective remedy of the building of closets. Dr. G. N. D. Overton has been confirmed in his appointment as Government medical officer, and from his annual report it would appear that typhoid fever, represented by 22 cases with four deaths, has been during the year the most serious enemy to the people's health. There has not been found to be any indigenous malaria or other insect-borne disease. "The Cayman Islands," writes Mr. C. E. Mellish, the acting British Commissioner, "are among the healthiest places in the world. There are no cases of illness attributable to climatic conditions. The prevailing breeze is from the south-east from April until October, when the cool season follows with a change of wind to the north and south-west in the early part of November. In the hot months the average temperature is 83°F. in the morning, 89° at midday, and 86° in the evening; in the cool months (November to March) it is 71° in the morning, 80° at midday, and 74° in the evening."

BOOKS, ETC., RECEIVED.

LONGMANS, GREEN, AND CO., London.
- Manchester Grammar School, 1515-1915. By Dr. A. A. Mumford. Pp. 563. 21*s*.
- Modern Science and Materialism. By Hugh Elliot. Pp. 212. 7*s*. 6*d*.
- Physiology of Muscular Exercise. By Professor F. A. Bainbridge, M.D. Pp. 215. 10*s*. 6*d*.

MACDONALD AND EVANS, London.
- Plain Guide to Investment and Finance. By T. E. Young, B.A. 3rd ed. Pp. 324. 7*s*. 6*d*.

MASSON ET CIE, Paris.
- Arcachon Ville de Santé. Par le Dr. F. Lalesque. Pp. 798. Fr.25.
- Le Mythe des Symbiotes. Par M. Auguste Lumière. Pp. 209. Fr.6.
- Leçons de Pathologie Digestive, 4e Série. Par M. Loeper, Professeur agrégé à la Faculté de Médecine de Paris. Pp. 298. Fr.11.
- Toxines et Antitoxines. Par M. Nicolle, E. Césari, C. Jouan, de l'Institut Pasteur. Pp. 123. Fr.5.
- La Pratique du Pneumothorax Thérapeutique. Par F. Dumarest, Médecin en Chef, et C. Murard, Médecin adjoint du Sanatorium d'Hauteville. Pp. 284. Fr.12.
- Anesthésie à la Stovaïne en Chirurgie et en Médecine Vétérinaires. Par Gustave Pérol, Médecin Vétérinaire. Pp. 32 and plates. Fr.3.

MILLS AND BOON, London.
- The Problem of Nervous Breakdown. By Edwin Ash, M.D. Pp. 299. 10*s*. 6*d*.

SAUNDERS, W. B., Co., London and Philadelphia.
- Teaching the Sick. A Manual of Occupational Therapy and Re-Education. By G. E. Barton, Director of Consolation House and President of Consolation House Convalescent Club, Inc. Pp. 163. 6*s*. 6*d*.
- Reconstruction Therapy. By W. R. Dunton, jun., M.D., Instructor in Psychiatry at the Johns Hopkins University. Pp. 236. 6*s*. 6*d*.
- Diet Lists of the Presbyterian Hospital, New York City. Compiled with notes by H. S. Carter, A.M., M.D. 2nd. ed., thoroughly revised. Pp. 165. 6*s*.
- Outline of Genito-Urinary Surgery. By G. G. Smith, M.D., Captain, Medical Corps, U.S.A. Pp. 301. 12*s*. 6*d*.
- Pocket Medical Dictionary. Edited by W. A. Newman Dorland, A.M., M.D. 11th ed., revised. Pp. 717. 7*s*. 6*d*.
- The Collected Papers of the Mayo Clinic, Rochester, Minnesota. Edited by Mrs. M. H. Mellish. Vol. X. 1918. Pp. 1196. 36*s*.
- Diet in Disease and Health. By J. Friedenwald, M.D., and J. Ruhrah, M.D. 5th ed., reset. Pp. 919. 25*s*.
- Neoplastic Diseases. A Text-book on Tumours. By J. Ewing, M.D. Pp. 1027. £2 2*s*.
- Milk. By Paul G. Heineman, Ph.D. Pp. 684. 25*s*.
- A Text-book upon the Pathogenic Bacteria and Protozoa for Students of Medicine and Physicians. By J. McFarland, M.D. 9th ed., revised. Pp. 858. 21*s*.